# LEARNING HOW TO USE EVIDENCE IN ARGUMENTATION

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ABSTRACT

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How does argumentive writing develop as young adolescents examine evidence and engage in rich peer discourse on a succession of four topics (13 class sessions each) over an academic year? Three classes participated, one randomly assigned to a control group and two to experimental groups. In a supporting-evidence experimental group, students only examined evidence that supported their own favored position on a topic. In a mixed-evidence experimental group, students examined multiple types of evidence that supported their position, weakened their position, supported the opposing position, or weakened the opposing position. A control group was not provided any evidence.

In individual final essays on each of the topics, both experimental groups included more evidence-based statements and were more successful in using evidence functionally to address a claim, compared to the control group. The experimental groups did not differ from one another in the employment of evidence-based arguments that supported their own position and both groups surpassed the control group in this regard. The mixed-evidence group exceeded the supporting-evidence and control groups in the successful use of evidence that weakened the opposing position; the supporting-evidence group also surpassed the control group in this regard. In use of evidence that supported the opposing position there was an effect of time, with performance improving over time, and an interaction between time and condition with the

mixed-evidence group surpassing the control group by topic four. (There was low incidence of, and no significant effects for, use of evidence that weakened own position.)

In a final year-end transfer assessment, all students wrote on a novel topic and had access to the same set of mixed evidence. Evidence use on this essay showed a condition effect, with the mixed-evidence intervention group using more evidence than either of the other two groups (who did not differ from one another). However, in contrast to their essay writing on the topics with which they had deep engagement during the intervention itself, these essays by the mixed-evidence group on a novel topic included with little exception only evidence to support their own position. Even though they were able to show their skill in using the range of types of evidence when they had gained familiarity with the topic, the lack of experience with the transfer topic limited their ability to fully implement their skills in using evidence in argument.

These findings suggest that students' argumentive writing, specifically with respect to the use of evidence, benefits from experience with a variety of forms of evidence, including evidence that weakens as well as supports claims. More broadly, these findings support dialogic argumentation as a productive technique in the development of student's individual argumentive writing.

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# DEDICATION

To my grandmothers –

Erma Eileen Stevens Heston

and

Elizabeth Morton Munro Hemberger.

Thank you each for your determination, perseverance, inspiration,

and unconditional love that made this possible.

# CHAPTER 1

## INTRODUCTION AND LITERATURE REVIEW

Walking down the street or sitting in a restaurant, one frequently hears or partakes in argumentation with another. Humans are inherently social creatures: thus we engage with others who may not share our same beliefs and thoughts. In a discussion of the best hamburger you've ever eaten, you attempt to persuade another that your claim is correct. This discourse is not necessarily intellectually challenging due to its subject matter: however if the parties involved in the discourse are skilled arguers the discourse reflects their cognitive, as well as social, abilities. From a social perspective the discussion of hamburgers reflects the function of an argument. One employs the most cogent reasoning to support one's own position and hopefully then respectfully listens to the other, retaining an openness to being persuaded by their opposing reasoning. From a cognitive perspective, the discourse must incorporate well-founded support for one's claims, anticipation of the other side's reasons, and development of counterarguments while maintaining a willingness to relinquish one's own claims if justified (Lin, & Anderson, 2008).

Argument skills improve with practice. Empirical studies have demonstrated that children's and adolescents' argumentative discourse strategies differ from those of adults (Kuhn, 2001; Felton & Kuhn, 2001; Felton, 2004; Kuhn, 2005). Engagement in dialogic argumentation has been shown to enhance not only argumentation strategies themselves but also individual expository writing skill (Kuhn, Shaw, & Felton, 1997; Anderson, Nguyen-Jahiel, McNurlen, Archodidou, Kim, & Reznitskaya, 2001; Reznitskaya, Anderson, McNurlen, Nguyen-Jahiel, &

Kim, 2001; Kuhn, Goh, Iordanou & Shaenfield, 2008; Wolfe, Britt, & Butler, 2009; Kuhn, 2010; Kuhn, Hemberger, & Khait, 2014).

***What is argumentation?***

An argument is a form of a reasoning in support of position. It has these major components: claims, a qualifier, data, warrants, rebuttals and backing (Toulmin, 1958). Argumentation is by is very nature a social activity (Felton & Kuhn, 2001). Walton (1989) developed a model of skilled argumentation, which includes two major components. One is to secure commitments from the opponent that can be used to support one's own argument. The other is to undermine the opponent's position by identifying and challenging weaknesses in his or her argument. To execute Walton's two goals both parties must heed to their opponent's claims by developing counterarguments, while also advancing their own claims. It is not enough to advance a claim and formulate a supporting argument, as people do each day. More is required to establish that an individual can engage effectively in argumentative discourse.

Vygotsky (1978) proposed that the individual must be studied within his or her own social context. Vygotsky embarked on his studies of development by focusing on children in social settings. Vygotsky's view on the relation between developing thought and developing language in children entails that language does not simply reflect thought or determine thought; language and thought mutually influence one another. The codependency of language and thought are present as a child attempts to convey meaning, comprehend what another is saying and be understood by others when engaged in a social setting. Interacting in a peer-to-peer

environment provides children an opportunity to voice their internal thoughts, enriching their understanding. As the child develops, social interactions appear in the form of argumentation but then progress within the child to become internal thoughts (Vygotsky, 1978). Thus, the development of reasoning within the individual is best fostered within social interaction, as a child does not learn in isolation, according to Vygotsky and contemporary socioculturalists (Wertsch, & Stone, 1985; Gredler, 2009). As the individual transitions to an interiorization of skills acquired in a social context, the need for a social context to support these skills diminishes. Thus, in an attempt to facilitate an individual's argumentative reasoning skills, it may be most effective to situate practice in a social environment, such as the dialogical argumentation curriculum employed in the present work.

Kuhn (2001) explores the developmental progression of epistemological understanding as critical to argumentation and an underlying component of an individuals' intellectual functioning, as illustrated by jurors' justification of reasoning (Kuhn, Weinstock, & Flaton, 1994). The foundation for knowing progressively develops through three broad levels of epistemological understanding. First, at the absolutist level knowledge is conceived as consisting of facts; these are certain, impartial and attained by the individual from external sources. Absolutist thinking typically evolves into the multiplist conception of knowledge during the adolescent age period or later. Also referred to as the relativist level, knowledge at the multiplist level is seen as a set of opinions, which the individual views as unquestionable valued personal possessions. At the highest level is the evaluativist epistemology, which treats knowledge as judgments subject to evaluation in a framework of evidence and argument. The evaluativist level is necessary to support sustained intellectual inquiry and argument. Neither are valued or

regarded as required at the lower levels. The evolution of individuals' epistemologies occurs gradually over many years, with the fundamental cognitive task being enrichment of conceptions of what it means to know something.

In a demonstration of the real-world implications of epistemological understanding for individuals' reasoning, Kuhn's "How do people know?" (2001) reviews Weinstock's (1999) study of jurors' reasoning task performance. Using a historical narrative with multiple contradictory perspectives – the Livia problem, Weinstock (1999) conducted interviews with actual jury members utilizing the jurors' responses to the Livia problem as the assessment of the jurors' epistemological understanding. The results indicated that the individuals' scores on the Livia problem were predictive of seven of the eight dimensions of the jurors' reasoning. Thus, a jurors' task of reasoning and verdict decision is influenced by jurors' own individual epistemological understanding.

The middle school level maybe an optimal period for educational efforts as adolescents are likely to be at the multiplist level of epistemological understanding; as adolescents regard their assertions as their own freely chosen individual opinions, adolescents tend to view the critical thinking involved in evaluating claims as irrelevant. With facilitation adolescents can be challenged to find value in debating claims as a way of knowing and promoting their assertions. They hopefully can come to see critical thinking as a mechanism to promote and enhance one's own understanding, leading to developing an evaluativist level of epistemological understanding. Revision of claims then becomes a continuing process, with the developmental goal being that the individual exhibit explicit conscious control over the revision process. To facilitate development of meta-strategic control, the perspective taken here is that it is useful to engage

adolescents in a social setting where these skills emerge and take shape in the externalization of thought in the form of social dialog.

### *Dialogic argumentation*

Kuhn, Shaw and Felton (1997) conducted two studies to investigate the cognitive outcomes resulting from engagement in dyadic interactions. With little earlier empirical research on the cognitive outcomes of adolescents' dyadic interaction Kuhn, Shaw and Felton (1997), overcame what were once obstacles by developing a reliable analytic system that is sensitive enough to assess participants' quality of reasoning – a system that can be used in developing and implementing an education intervention. Their results indicate that multiple engagements in dyadic interactions enhance participants' – young adolescents and young adults – range and quality of argumentive reasoning.

They used the topic of capital punishment (CP) as the focus topic for pretest, intervention and posttest. It is an issue regarding which many arguments can be produced for and against the practice. Further, they found it an issue for which they were able to reliable identify these arguments. The first of their two studies included participants of two age levels – early adolescents (seventh and eighth graders at a public middle school) and young adults enrolled at an urban community college The 93 total participants in the first study were randomly assigned to an experimental (adolescents – 34, adults – 29) or a control (adolescents – 15, adults – 15) condition. The pre- and post- assessments were identical in content and administration schedule for both conditions. Both consisted of two components, first an opinion scale on the topic of CP

and then a brief written justification for the opinion. The experimental condition involved participants in five dyadic discussions on the CP topic with varying partners at each session over the course of five weeks. The participants were thus exposed to a range of different opinions from their partners; the average discussion length of the adolescents was 10 minutes and the average discussion length of the adults was 15 minutes.

The authors performed reliability assessments on their analytic scheme to classify the quality and various argument elements of the participants' written justification. Their initial intent was to analyze the overall argument structure the participants' employed for their expository writing on the CP topic from their pre- and post- tests; however, it was found that the participants' writing could almost always be characterized as linear - a sequence of arguments was listed.

Kuhn, Shaw and Felton's (1997) study yielded five results. First, arguments at the two age levels were of comparable quality. Second, among the experimental participants of both age levels the two most frequent types of qualitative improvement from pre- to post-test were – (i) appearance of metacognitive statements and (ii) an evolution from one-sided to two-sided arguments. Third, students of both age levels in the experimental condition significantly enhanced their range of arguments from the pre- to post-test, whereas among those in the control condition, such improvement did not occur. Fourth, experimental participants were more likely than controls to show quantitative opinion change. However, and fifth, adolescents in the experimental condition were less likely to report opinion change than were adults in the experimental condition. To illustrate the process of change that occurred during the dyadic

dialogues of the experimental condition participants, the authors included excerpts of two participants' dyadic dialogues.

Thus, Kuhn, Shaw, and Felton (1997) found that engagement in dyadic discussion significantly enhanced argument skills. The fact that participants in both age groups used a greater range of arguments and progressed from one-sided to two-sided arguments suggests an internalization of skills acquired in the social context. However, it is unclear from their study to what extent gain is attributable purely to social transmission of new ideas or continued engagement and practice. Because the adolescents in the experimental group also were found to be twice as likely as adults to change their opinion between the pre and posttest, further investigation is needed regarding optimum age for intervention. Related and needing study is the fact that only the younger group showed metacognitive gains.

The second study reported by Kuhn, Shaw and Felton (1997) investigated the effect of a single-occasion dyadic interaction. In the second study 50 young adults (experimental – 35, control – 15) from the same adult population in the first study were randomly assigned to the two conditions. The pre- and post- tests were identical in content and procedure as in the first study; the assessments were administered approximately two weeks apart. Engagement in a dyadic discussion in the experimental condition was altered in the second study; participants were instructed to contact their randomly assigned partner by phone to discuss their views on the topic of CP and then to jointly write a one to two page position statement paper on the topic, due in five days. The results indicated no statistically significant progression in argumentive reasoning abilities. Therefore, face-to-face contact appears important.

Overall, the results of these two studies indicate that the range of arguments exhibited and quality of argumentation at both age levels are significantly enhanced with engagement in multiple dyadic interactions. The authors suggested two future directions for research – first, replication of the studies to vary conditions of participant involvement. Secondly, as the authors unexpectedly discovered from their first study, adolescents in the experimental condition exhibited metacognitive advancement that adults in the same condition did not. Thus they recommend that further study and research need to be done with the adolescent age group (Kuhn, Shaw & Felton, 1997).

With an objective to create a transactive coding scheme grounded in function rather than content, Felton and Kuhn (2001) utilized transcripts of dyadic dialogues from the study conducted by Kuhn, Shaw and Felton (1997). The authors defined each conversational turn in the dialogue as an utterance. For each utterance there is a speaker and a partner; the speaker is the person making the utterance while the partner is the person to whom the utterance is directed. Codes were assigned to each utterance to classify the interactive function of each utterance.

After assessing inter-rater reliability on the analytic scheme, the authors identified three broad categories that constitute the scheme – transactive questions, transactive statements and nontransactive statements. The category of transactive questions consists of eight utterance types (codes), in which the utterance in the form of a question or a command elicits a response from the partner. Fifteen utterance types are included in the category of transactive statements, defined by the speaker directly responding to their partner's immediate previous utterance. The category of nontransactive statements consists of two utterance types, in which the utterance neither connects nor addresses the partner's immediately preceding utterance. After coding all of the

utterances, the authors analyzed the dialogues for patterns of utterances, identifying three strategic sequences – corner sequence, rebuttal and block. A corner sequence is defined as the speaker cornering their partner by engaging in an utterance of Clarify? or Interpret, followed by a response from their partner; then the speaker makes a Counter-C utterance; thus, the resulting is a corner sequence, as the partner is 'cornered' into an indefensible position. A rebuttal is a defensive move categorized by the partner producing a Counter-C or Counter-A utterance and the speaker responding with a Counter-C utterance. A block is when a partner produces a leading question the speaker responds in the defensive move of 'blocking' their partner's question by responding with a counter argument or a rejection. The authors included examples to illustrate the application of the coding schema to each utterance within a dyadic dialogue.

Felton and Kuhn (2001), compared age groups in their use of utterance types. They also compared the argumentive context of the dyadic dialogues – disagreeing or agreeing. Overall the results indicated that adults are more strategic in argumentive discourse compared to adolescents in three notable respects. First, in disagreeing dyads, adults more frequently produced indirect (Interpret, Clarify-?) and direct (Counter-C) that seek to weaken their opponent's argument. Secondly, more prevalent in adult dialogues than in adolescent dialogues were the three defensive strategic sequences of block, rebuttal and corner. Finally, when engaged in discourse with a partner of agreeing opinion, adults increased their use of transactive statements (Agree, Add, Advance, Substantiate, Aside); such strategies can be used to enhance and strengthen one's own position. Furthermore, adults were more apt to modify their argumentive strategies depending on the context (agreeing, disagreeing) of the argumentive discourse than were

adolescents, whose argumentive discourse strategies remained largely unchanged across the two argumentive contexts (Felton & Kuhn, 2001).

Felton and Kuhn (2001) thus concluded that adolescents struggled to achieve the strategic goals of argumentative discourse and were challenged in exhibiting the flexibility required in differing discourse contexts – specifically agreeing vs. disagreeing – as the adults were able to do. Although adolescents were not as strategically successful as adults, their discourse skill did improve as a result of participation in the study. This finding suggests the importance of discourse strategy as a source of developmental differences in argumentation.

Other research with younger participants than those of concern in the present study supports this view. In an examination of fourth-grade students engaged in small group discussions, Anderson, Nguyen-Jahiel, McNurlen, Archodidou, Kim, and Reznitskaya (2001) found that children employed rudimentary argumentation skills that once put into practice by one student spread to others. This strategy would then increase in frequency in its occurrence and implementation by the other students. Anderson et al. (2001) termed this a snowball phenomenon. The children employed strategies such as—attempts to make claims explicit, the use of evidence to support an argument, or creating hypothetical scenarios to challenge the opposition's argument. These strategies do not inevitably fulfill argumentative goals, but this research constitutes further evidence regarding developmental origins of skilled argumentation.

This early line of empirical research (Kuhn, Shaw, & Felton, 1997; Kuhn, 2001; Felton & Kuhn, 2001; Anderson et al., 2001) demonstrates that as participants engaged in continuing dialogical activities, their argumentative abilities improved. Therefore, Vygotsky's notion that peer-to-peer interactions stimulate individual cognitive advance is supported.

### *Argumentation in the classroom*

Children may not be consciously aware, but at an early age they are able to engage in argumentation, as they appeal to their parents or peers for what they want. By middle school age, as reflected in widely publicized new standards (CCSS, 2012), students who will succeed academically are expected to demonstrate the ability to construct and evaluate arguments. In higher education and through popular standardized tests, educators expect, explicitly or implicitly, that students who will succeed academically have acquired the ability to construct and evaluate arguments, and those who do not are punished with failure (Graff, 2003). However, there is a gap between the argumentive skills valued in academia and children's argumentive abilities with their parents or peers (Graff, 2003).

In argumentive discourse students most often ignore the opponent's position (Felton & Kuhn, 2001). But when they do attend to it at all they commonly struggle to construct counterarguments to an opponent's claims, a goal identified by Walton (1989) as one of the two objectives of skilled argumentation, as described earlier. Students similarly struggle in their argumentive writing, which is typically one-sided and flat (Graff, 2003). Graff (2003) proposes that students' writing would be enhanced if student writers envisioned an interlocutor to address. Participation in argumentation stands to facilitate students' argumentive writing by promoting Graff's "missing interlocutor" that gives a point to a written argument (Kuhn, Shaw, & Felton, 1997; Reznitskaya, Anderson, McNurlen, Nguyen-Jahiel, Archodidou, & Kim, 2001; Kuhn, Goh, Iordanou & Shaenfield, 2008; Wolfe, Britt, & Butler, 2009; Kuhn, 2010). Grounded in

children's conventional conversations, everyday talk has the potential to serve as a foundation for individual argument (Kuhn, 1991). Rooted in the sociocultural tradition of Vygotsky (1978), the theoretical foundation of Graff's (2003) "missing interlocutor," and the developmental perspective of Kuhn's (1991) "everyday talk," dialogic argumentation is a vehicle for the enhancement of individual reasoning, in particular that expressed in argumentive writing. Examining the nature and course of such enhancement is the board purpose of the present work.

If the proposition is accepted that the skill of both dialogic and individual argument is essential to students, can it be claimed that schools successfully foster its development among their students? There is little evidence they do. In any case, the pedagogical importance of argument skill has now been officially recognized. A recent development in the United States has been the creation of the Common Core State Standards Initiative, which 45 of the states and 3 territories have formally adopted as their own state's educational standards. The Common Core State Standards (CCSS) dictate in the college and career readiness anchor standards for writing that students in grades kindergarten through 12 "write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence," (CCSS, 2012). Furthermore, the Initiative proposes in review of key points in English Language Arts that "the ability to write logical arguments based on substantive claims, sound reasoning, and relevant evidence is a cornerstone of the writing standards, with opinion writing – a basic form of argument – extending down into the earliest grades," (CCSS, 2012).

Lacking in the CCSS is analysis of the nature of this proposed reasoning, nor is there discussion of how the standards might be achieved and implemented to ensure that the standards are achieved. The need to develop such methods is clear. Measures of eighth graders' abilities to

construct persuasive essays, as reported by the 2011 NAEP national performance results in Writing at grade 8, indicate that only 38% of the students wrote argumentive essays that were scored proficient or better. (The breakdown of performance is as follows: Little or no skill 7%, marginal 22%, developing 32%, adequate 24%, competent 10%, effective 4%.) The research reported here is part of a line of work by Kuhn and colleagues that contributes to a foundation of research to facilitate implementation and achievement of the Common Core State Standards with respect to argument.

Through engagement in dialogic argumentation with peers, students' individual expository writing abilities improve. Successful transfer of reasoning skills were found in the previously mentioned study by Reznitskaya, Anderson, McNurlen, Nguyen-Jahiel, Archodidou and Kim's (2001). In their five-week study of elementary school aged children, employing an approach to group discussions they called collaborative reasoning, children were facilitated by their teacher to take a position about a story they had read. They also were prompted to provide reasons for their position, evaluate the other-side's reasoning and use evidence, with the aim of improving the students' argumentation skills. Assessing student's individual essays, Reznitskaya et al. (2001) found that the essays of students who participated in the intervention contained more counterarguments, rebuttals and formal argumentative strategies than that of their peers who did not participate. Thus, students acquired argumentation skills during collaborative discourse that transferred to individual persuasive writing. The transfer of skills across context again suggests that dialogical settings have a positive effect on individual performance.

Wolfe, Britt and Butler (2009) found, among first year undergraduate students, that successful argumentative writing abilities were facilitated by a short, theoretically based tutorial

on how to improve one's writing abilities. This tutorial provided participants with an argumentation schema—to generate, elaborate, support reasons for one's own side and to examine, evaluate and generate the opposing-side's reasons. The participants who received the tutorial improved their writing significantly by including these aspects from the argumentation schema. Further investigations need to be conducted on differing age groups, as reproducing such findings with the facilitation of a writing tutorial would benefit all ages of writers. However, it is by no means established that explicit instruction of this sort is the most effective method for developing the argumentive writing skills of younger students.

Ferretti, Lewis, and Andrews-Weckerly (2009) investigated how an assignment's goal was presented to students in the fourth and sixth grades affected the students' argumentative writing abilities. Using the same controversial topic prompt for each group, the authors differentiated the conditions by one group receiving a general goal and the second group receiving an elaborated goal, which included explicit sub-goals on the elements of argumentative discourse. Ferretti, et al. (2009) found that the elaborate goal directions produced modest effects on the persuasiveness of the students' essays and that the essays' structure in terms of argumentative strategies employed were predictive of the essays' overall quality, although, the arguments the students produced were superficial in nature. The authors suggest that a reason for the shallow nature of the arguments could be that the students' refrained from producing well-developed arguments in favor of the other side's position as then the student would be left in a conflict and would have to resolve it. This study lacks generalizability as there was only one-time-point observation and it is unclear if the elaborated goal condition had an authentic, long-term effect on students' skill.

Utilizing the randomized block method over the course of two academic school years, Olson, Kim, Scarcella, Kramer, Pearson, van Dyk, Collins and Land (2012), randomly assigned 72 secondary English teachers to a control condition – involving the typical 26 hours of professional development employed by the school district – or to the Pathway Project intervention condition. The Pathway Project teachers received in addition to the standard 26 hours of professional development another 46 hours of training in how to integrate cognitive strategies into the classroom and classroom intervention activities focused on the revision process of students' essays involving multiple drafts. The authors conclude that the two-year intervention was successful as the students' essays improved in structure, included deeper analysis, improved the inclusion of reasons, and advanced students' mastery of conventions of writing. These improvements are notable; however, the indicators the authors' used to distinguish improvement in the students' writing remain superficial and are in need of refinement.

Kuhn and Crowell (2011) set out to investigate middle school students' development of individual argumentive reasoning in written work as a function of extended participation in dialogic argument. Their intervention method of engagement in extended dialogic argument with peers was predicted to enhance the development of argument writing skills relative to a comparison group, whose performance confirms that these skills do not develop innately during the adolescent age range. The comparison group students engaged in a more face-valid set of classroom based activities of extensive essay writing and teacher-led whole-class discussions, during the same period of time that the intervention group students engaged in dialogic argumentation activities. The outcome measures for both the comparison and intervention groups

were individual written essays, focusing on the thinking underlying the writing, versus the standard and typical focus on surface aspects of students' writing work. Essays were administered to both groups at the beginning of the first school year and at the end of the school year for three consecutive years. The researchers hypothesized that the intervention group would demonstrate greater argument quality in assessment essays when compared to the comparison group. Additionally, at the third year of the study the researchers investigated the students' understanding of the role of evidence to argumentation by the inclusion of the prompting question with each assessment essay asking students' to list questions they would want answers to which might assist them in making their argument. The researchers hypothesized that the intervention group would demonstrate a greater awareness of the need for and value of evidence in argumentation, relative to the comparison group.

The school administrators, in the school where the researchers conducted the study assigned entering students into one of three classrooms per grade level, with approximately 30-32 students per class. The researchers randomly selected two classes to serve as the experimental group (n = 48) and a third class as the comparison group (n = 23). Such a design thus controls for practice effects. The researchers included two parallel assessment essays – one administered at all assessment occasions to detect change over time (teacher pay essay) and one novel assessment (euthanasia essay) assigned only at the end of the third year of the study to assess whether gains transferred to a new topic not previously encountered, thereby controlling for practice effects. At the end of the third year of the study the researchers added an external comparison group of 50 students from a different school than the school where the study was conducted; however, the students were closely matched in age, standardized scores, SES,

ethnicity and were of the same grade level as the main-sample school students. Thus, a matched within-school and external comparison group adds to the researchers control for effects of school climate and other idiosyncratic school characteristics.

The students in the experimental group engaged in dialogic argumentation intervention, meeting two class periods a week over the course of three school years. The intervention cycle of activities consisted of four topics per school year, with approximately seven weeks per topic. The students were engaged in such activities for every topic – same-side classmate discussions, electronic dialogic discourses between opposing-side classmates, whole-class debates, a whole-class debrief of the debate and were assigned individual written essays completed per topic to culminate the cycle of activities for each topic. In addition to the cycle of activities completed for each topic, beginning in the second year of the intervention the researchers began to emphasize the role of evidence in argumentation by asking them to generate their own factual questions, the answers to which might help them in their dialogues.

The researchers categorized essays into four categories – no argument, own side only, dual perspective, and integrative perspective. The argument type of no argument is just that, no argument was made. An own-side argument included the positive attributes only of the arguer's favored position. The researchers defined an essay as dual perspective when the arguer noted negative attributes of the opposing position. An integrative perspective idea unit included the arguer's identifying a negative attribute of their own favored position or a positive attribute of the opponent's position.

Kuhn and Crowell (2011) repeatedly administered the teacher pay essay assessment to assess change over time. Two significant results stand out. The experimental group exceeded the

comparison group at the second year of the assessment in production of dual perspective arguments. At the third year the experimental group also produced more integrative arguments than the comparison group. On the euthanasia essay assessment at the third year, the experimental group also outperformed the comparison group. For each of the assessment times a significant difference was found in question production, with the experimental group exceeding the comparison group, thus confirming the researchers' prediction of the experimental group demonstrating greater awareness of the role of evidence in argumentation.

It is evident from the studies reviewed here, of individual expository writing or in dialogic settings, that these skills do not naturally emerge, but rather develop with practice (Felton & Kuhn, 2001; Felton, 2004; Kuhn, 2005). As children and adolescents engage in dialogic argumentation their execution and understanding of argumentative discourse is enriched. Skill in argumentation increases along two parallel paths – practicing dialogic argument skills and understanding the purpose of argumentive discourse. The more an individual practices, the more they understand and the more they understand, the more they practice argument to better understand. Practice and understanding mutually reinforce one another, accelerating an individual's developing argumentation skills. These benefits potentially extend to decision-making (Udell, 2007), meta-level regulation (Kuhn, Goh, Iordanou, & Shaenfield, 2008), and epistemological advancement (Kuhn, 2010).

***The dialogic argument curriculum employed in the present work***

The extended intervention approach developed by Kuhn and colleagues (Crowell & Kuhn, 2014; Kuhn & Crowell, 2011; Kuhn, Hemberger, & Khait, 2014) engages students in sustained dialogic argumentation with peers, meeting two class periods per week over the course of two or more school years. The intervention cycle of activities consists of four topics per school year, with approximately seven weeks devoted to each topic. Students choose the side they will take on a social issue and divid into two teams accordingly. They then engage in activities that begin with same-side small group work to develop their reasons and to prepare for electronic dialogs with a succession of opposing-side classmates, conducted in pairs. They then return for two more sessions of same-side work to prepare for a whole-class debate, followed by a debrief of the debate and an individual written essay as a culminating activity for the topic. An overview of the 13-class session's workflow activities completed for each topic in the curriculum is presented in Table 1.

Table 1. *The argumentation curriculum workflow cycle of activities completed per topic.*

| *Sessions* | | *In class activity* |
|---|---|---|
| Pregame: Small group work | 1 | Generating, sharing & thinking |
| | 2 | Finalizing & evaluating our reasons |
| The Game: Paired dialogs | 3-8 | Paired same-side peer groups engage in an electronic dialog with an opposing same-side peer pair. The dueling opposite side pair group dialogs rotate for every class session. (For example a pro –side pair 3 would dialog with the con-side pair 1 for class session 3, then for class session 4 the pro-side pair 3 would dialog with the con-side pair 2.) |
| Endgame | 9 | Preparing to counter others' reasons |
| | 10 | Preparing to rebut others' counters to our reasons |
| | 11 | Showdown |
| | 12 | Showdown debrief |
| | 13 | Essay pre-writing activity: Arguing with yourself |

Summarized in Table 2 are the developmental goals that together with the kind of student activities that support each goal form the curriculum roadmap. The sequence in Table 2 isn't one that students progress through in a strict order, rather students cycle through this progression many times over with new and different, and gradually more complex ideas and topics. The complete implementation guide for the argumentation curriculum is included in Appendix O. Beginning with topic 3, students from all classes were able to generate questions the answers to which they thought might be helpful to them in making their arguments. If and when a student submitted a question, a brief answer was provided at the following class session and the question and answer remained available to the entire class thereafter.

Table 2. *Summary of curriculum activities and associated cognitive goals*.

| *Curriculum activity* | *Cognitive goal* |
|---|---|
| Generating reasons | Reasons underlie opinions. Different reasons exist for the same opinion. |
| Elaborating reason | Good reasons support opinions. |
| Evaluating reasons | Some reasons are better than others. |
| Developing reasons into an argument | Reasons connect to one another and are building blocks of argument. |
| Examining and evaluating opponents' reasons | Opponents have reasons too. |
| Generating counterarguments to others' reasons | Reasons can be countered. |
| Generating rebuttals to others' counterarguments | Counters to reasons can be rebutted. |
| Supporting (and weakening) arguments with evidence | Evidence can strengthen claims. It can also weaken claims. |
| Contemplating mixed evidence | The same evidence can be used to support or weaken different claims.<br>The same claim can be supported or weakened by different pieces of evidence. |
| Conducting and evaluating two-sided arguments | Opposing positions must be weighed in a framework of alternatives and evidence. |
| Constructing an individual argument (written or oral) | An individual argument can be constructed from a dialogic argument. |

Utilizing the medium of electronic discourse between paired students arguing with opposing-side pairs has been found engaging to students as well as productive (Kuhn, Goh, Iordanou, & Shaenfield, 2008). The students are familiar with the software, facilitating ease in its use. Most important, the electronic dialogs provide students with a transcript of their exchanges, available throughout and following the discourse. Electronic dialog thus differs from exchanges during face-to-face discourse in which the words vanish immediately after they are spoken. In addition to the transcripts serving as reference sources during the dialogs, they are utilized by students in several reflective activities.

Implementation of the method over successive cohorts has yielded several major findings (Felton & Kuhn, 2001; Crowell & Kuhn, 2014; Kuhn & Crowell, 2011). First, there is improvement in the students' dialogic argumentation as assessed by the previously discussed analytic scheme that codes the functional relation between a discourse move and the opponent's immediately preceding utterance (Felton & Kuhn, 2001). Over time the proportion of students' usage of counterargument and rebuttal increases (Crowell & Kuhn, 2014). Typically young adolescents when first engaging in argumentation focus their attention on espousing their own favored position, while largely ignoring the opponent's position. Thus, Crowell and Kuhn's (2014) finding shows that sustained engagement in dialogic argumentation is a productive vehicle for the enhancement of students' abilities to attend to and address their opponent's position, with the aim of weakening opponents' claims. It was also found that these gains transfer to students' individual written argument, as discussed above (Kuhn & Crowell, 2011). The dialogic group wrote superior essays, despite having been provided less writing practice than the comparison group.

### *Overview and rationale of present study*

The present study builds on the preceding conceptual and empirical base. The study investigates the specific skill of using evidence in argument and to do so in the two ways it can function – to support claims and to weaken claims. As noted, students typically write essays that are one-sided in nature, offering arguments confined to the virtues and strengths of their own position. A goal of this study is to enhance students' ability to write a two-sided essay that

incorporates evidence in the service of both strengthening and weakening opposing claims. The primary goal, however, is to enhance students' skill and understanding with respect to the use of evidence in argument. Earlier research by Kuhn and Moore (2015) showed that students were able to use evidence primarily to support their own claims and infrequently drew on evidence to serve the equally important function of weakening opposing claims. The present work explores ways to strengthen the latter skill. It is hypothesized that improvement in quality of middle school students' individual argumentive writing will occur as they participate in a dialogic argumentation curriculum. Specifically, during the course of engagement in the argumentation curriculum, one-sided essays will diminish and be replaced by essays that address both sides of a topic and relate evidence to both in effective ways.

The focus of this study is on the progression and development of students' argumentive writing not on novel topics for which they have no prior preparation, as examined by Kuhn and Crowell (2011) in their pre- and post-tests, but rather in the essays on the topics students encountered during the intervention itself. The deep engagement with the topic it is hypothesized will enhance their performance, as found in past research based on this curriculum. More specifically, the focus is on how to support students' mastery of what earlier work (Kuhn & Moore, 2015; Khait, 2014) has found to be a consistent weakness – the use of evidence to weaken a claim. This is done via an intervention that scaffolds their doing so by providing evidence appropriate to this function (weakening the opponents' position) and suggesting that they try to include use of this evidence in their dialogs. Two comparison conditions are included. In one, evidence is similarly provided and the suggestion to use it made, but this evidence is only

of a form appropriate to strengthening the own-side position. In a second comparison condition, no evidence is provided.

# CHAPTER 2

## METHOD

### *Participants*

The 71 participants (25 female) were students attending a non-selective public middle school in an underserved neighborhood of a large city in the northeast United States during their 6th grade year. The student body is ethnically, socioeconomically, and academically homogeneous – 92% qualify for free or reduced-price lunches; 82% are Hispanic, 14% African-American, and 4% Caucasian. The large majority are functioning below grade level academically. Of the 71, 27% are classified as Students With a Disability (SWD) and 44% are English Language Learners (ELL) as classified by federal guidelines.

Of the 71 students in the school's three 6th grade classrooms at the beginning of the school year, 58 students (23 female) remain in the final sample. Of the remaining 13, five students' families moved out of the school district, and three students were transferred during the school year to a different class; five students were excluded due to excessive absences.

### *Design*

Students had been randomly assigned to the three 6th grade classrooms by the school administration and were therefore regarded as equivalent. All three classes participated in a twice-weekly argumentation curriculum to be described; two of the classes were randomly selected to serve in experimental conditions. The third classroom served as a control group. Of

the final sample of 58, 19 (6 female) students from one classroom served in the mixed-evidence experimental condition, 19 (8 female) from another classroom served in the supporting-evidence experimental condition, and 20 (9 female) from the third classroom served in the control condition.

The mixed-evidence and the supporting-evidence groups differ with respect to the types of evidence made available to students, which constitutes the main manipulation. No evidence was made available to the control group. The evidence made available to students in the supporting-evidence condition was exclusively of a type that served to support their own position. The evidence made available to students in the mixed-evidence condition was a mixture of four types, i.e., supporting own position, weakening own position, supporting opposing position and weakening opposing position.

Students in all classes wrote three essays on each of the four topics students encountered over the course of the school year. The first essay was a preliminary essay written at the first of 13 class sessions for the topic, the second essay was an interim practice essay written during the tenth class session for the topic, and the final essay was written at the twelfth and final class session for the topic. The initial and interim topic essays were included as practice writing as a component of the argumentation curriculum. Only the four final essays (one for each of the four topics students' engaged in over the year) constitute the database for the present study. In addition, and included as part of the database, is an essay students wrote on a novel topic at the end of the year, for the purpose of assessing transfer of gains.

Of the 273 essays included in this study, 3 (1%) of those essays were written in a language other than English. Those three essays came from the same two students – one of the

student's topic 1 essay needing translation from French into English and the other student's topics 2 and 3 essays needing translation from Spanish into English. Both of these students were in the control group and both of these students were classified to be English Language Learners (ELL) by federal guidelines. Of the 273 essays included in this study, 13 (5%) of those essays were orally dictated by a student to a teacher (Appendix F: Table 1).

***Research questions***

The major goal of the intervention introduced in this student is to develop students' skill in writing an argumentive essay that incorporates evidence that bears on opposing claims, as well as their own claims. A method for doing so is compared to methods employed in two comparison conditions that are not expected to be as successful.

The following questions were addressed:

(Q1) Does engagement with the argumentation curriculum lead students in all three conditions to increase their use of evidence-based claims in their essays over time? Alternatively, do evidence-based claims remain constant or decrease in frequence over time?

(Q2) Does the type of evidence made available to students affect their progress with respect to evidence-based claims in their essays? Specifically it is anticipated that students in the mixed-evidence condition will make the greatest progress in using all four type of evidence

(strengthening and weakening their own side and strengthening and weakening the opposing side), due to the practice afforded them in the intervention in encountering evidence that can be used appropriately in all four of these ways. Students in the supporting-evidence condition, who encounter only supporting evidence, are expected to make less progress. Students in the control condition, who encounter no evidence, are expected to make the least progress.

(Q3) Do differences in use of evidence in arguments across the three groups during the intervention transfer to a final essay on a new topic at the end of the intervention?

***Evidence types***

A brief piece of evidence, in question and answer format, was presented on six occasions during engagement with each of the four topics. The question and answer format was brief and simple (one to two sentences in length) to ensure that participants' reading level would not compromise comprehension. Evidence was of four types: (1) evidence favorable to own position (M +), (2) evidence unfavorable to own position (M –), (3) evidence favorable to opposing position (O +), and (4) evidence unfavorable to opposing position (O –).

Students in the supporting-evidence condition were only presented evidence supporting their own side, with a different piece of evidence presented at each dialog class session (a total of six sessions per topic). The specific evidence for one topic (the first topic students addressed) appears in Table 3 as an illustration. The first topic was whether parents should be allowed to homeschool their child, with one side favoring allowing Homeschool and the opposing side

favoring requiring Town School. As illustrated in Table 3, participants who favor Homeschool and belong to the Homeschool team are presented different evidence than those who adopt the Town School position and constitute the opposing team.

Table 3. *Evidence questions and answers for the supporting-evidence group – topic 1.*

| *Dialog Session* | *Homeschool Side* | | *Town School Side* | |
|---|---|---|---|---|
| | *Type of evidence* | *Evidence question and answer* | *Type of evidence* | *Evidence question and answer* |
| 1 | H + | Q: Who sets the curriculum for a homeschool child?<br>A: The family is free to set the curriculum within certain guidelines. | T + | Q: Who sets the curriculum for a public school child?<br>A: School districts along with city and state governments have education departments that decide what all children need to learn. |
| 2 | H + | Q: How many children are homeschooled in the United States?<br>A: Of all American children ages 5-17 during the 2011-2012 school year almost 2 million were homeschooled. | T + | Q: How many children attend public or private schools in the United States?<br>A: Of all American children ages 5-17 during the 2011-2012 school year 97% of children attended public or private schools. |
| 3 | H + | Q: Is homeschooling legal?<br>A: Homeschooling is legal in all 50 states. Every state has its own laws regarding homeschooling but some laws merely require you to notify your local school district that you are homeschooling your child. | T + | Q: What are the requirements to be a public school teacher?<br>A: A public school teacher must go through teacher training programs, classes and must pass certification exams to become a certified teacher. |
| 4 | H + | Q: How do homeschool students perform on achievement tests?<br>A: On average, homeschool students in 1st to 4th grades performed one grade level above their age-level public/private schooled peers on achievement tests. | T + | Q: Do most schools have specialists to help children if they have specific problems like a learning disability?<br>A: Almost every public school has a special education teacher on staff full-time. There are federal and state laws that protect and ensure special education services are provided to any child that has a need. |
| 5 | H + | Q: What can a homeschooled student do for sports and activities?<br>A: There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend. | T + | Q: How easily do children learn a second language?<br>A: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do. |
| 6 | H + | Q: What are the college graduation rates for homeschool versus public school students?<br>A: A study showed that homeschool students (66.7%) graduated from college at a higher rate than public school students (57.5%). | T + | Q: Is working with a group in school good for children?<br>A: Group projects can help students develop many skills that are increasingly important in the work world. |

Note. It is assumed for this illustration that Homeschool is the participant's favored side and Town School is the opposing side. H +: Evidence favoring the Homeschool side; T +: Evidence favoring the Town School side.

Evidence presented to participants in the mixed-evidence condition included all four of the forms (M +, M –, O +, O –). The sequence of presentation appears in Table 4 and an illustration for the homeschool topic in Table 5. Although our concern is with developing ability to incorporate the other three types, evidence favoring own position was presented at dialog

session 1 and again at session 5, so that students would perceive some balance in the extent to which the evidence in total favored each side. Also, evidence presented initially (supporting own and weakening other, in dialog session 1 and 2) was favorable to the student's own side, and the more difficult evidence to address, which favored the opposition, did not appear until the later dialog sessions.

Table 4. *Presentation of evidence schedule for the mixed-evidence group – topic 1.*

| *Dialog session* | *Homeschool Side* | *Town School Side* |
|---|---|---|
| 1 | H + | T + |
| 2 | T – | H – |
| 3 | T + | H + |
| 4 | H – | T – |
| 5 | H + | T + |
| 6 | T + | H + |

Note. H +: Evidence favoring the Homeschool side; T +: Evidence favoring the Town School side; H –: Evidence unfavorable to the Homeschool side; T –: Evidence unfavorable to the Town School side.

Table 5. *Evidence questions and answers for the mixed-evidence group – topic 1.*

| *Dialog Session* | *Homeschool Side* | | *Town School Side* | |
|---|---|---|---|---|
| | *Type of evidence* | *Evidence question and answer* | *Type of evidence* | *Evidence question and answer* |
| 1 | H + | Q: Who sets the curriculum for a homeschool child?<br>A: The family is free to set the curriculum within certain guidelines. | T + | Q: Who sets the curriculum for a public school child?<br>A: School districts along with city and state governments have education departments that decide what all children need to learn. |
| 2 | T – | Q: How many students are in a typical classroom?<br>A: In the United States the typical middle school classroom has an average of 24.3 students. | H – | Q: Are homeschooling parents qualified to teacher their children?<br>A: Homeschooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects. |
| 3 | T + | Q: Who sets the curriculum for a public school child?<br>A: School districts along with city and state governments have education departments that decide what all children need to learn. | H + | Q: Who sets the curriculum for a homeschool child?<br>A: The family is free to set the curriculum within certain guidelines. |
| 4 | H – | Q: Are homeschooling parents qualified to teacher their children?<br>A: Homeschooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects. | T – | Q: How many students are in a typical classroom?<br>A: In the United States the typical middle school classroom has an average of 24.3 students. |
| 5 | H + | Q: What can a homeschooled student do for sports and activities?<br>A: There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend. | T + | Q: How easily do children learn a second language?<br>A: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do. (#11) |
| 6 | T + | Q: How easily do children learn a second language?<br>A: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do. | H + | Q: What can a homeschooled student do for sports and activities?<br>A: There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend. |

***Procedure***

The three classes met for a twice-weekly 45-minute class, referred to as debate class by the school's staff. The argumentation curriculum implemented follows that described by Kuhn and Crowell (2011) with the addition of an interim essay during the tenth session. The topic cycle began with small-group same-side teamwork ("Pregame") and proceeded to pair dialogs with the opposing side ("Game"). Final small-group preparation preceded a whole-class "Showdown" debate that served as the capstone experience of the sequence ("Endgame"), followed by a debrief session and final individual essay assignment. All students, regardless of condition, progressed through the curriculum of 13 twice-weekly class sessions for each topic. An overview appeared in Chapter 1 (Table 1). A detailed implementation guide with daily session lesson plans and materials for topic 1 appears in Appendix O.

The complete topic 1 (homeschool versus town school) scenario presented to students appears in Table 6. Prior to the first class session students were administered a straw poll on potential topics, students side choices and certainty of side preference were the basis for creating two teams – in the case of topic 1 one favoring the homeschool position and the other the town school position. Topics chosen were ones for which the class divided fairly equally into two teams, one favoring each position. The specific results of each topic straw poll and students' certainty of side preference appear in Appendix (Topic 1 – Appendix B: Table 2; Topic 2 – Appendix C: Table 3; Topic 3 – Appendix D: Table 3; Topic 4 – Appendix E: Table 3).

Table 6. *Topic 1 scenario.*

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together.

*A problem has come up!* The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home. As a town, we must decide what to allow: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?

*Please vote by circling one option:*

Home school okay  Nick must go to town school  Undecided

*How sure are you of your opinion? (Circle one)*

Certain  Very Sure  Sure  So-so  Not very sure  Not sure at all

The second topic was whether the United States should get involved or should not get involved in assisting a poor Asian country that was being invaded by a neighboring country. (See Appendix C, Table 2, for full scenario.) The specific questions and answers for each topic appear in Appendix (Topic 2 -Appendix C: Table 5; Topic 3 - Appendix D: Table 5; Topic 4 - Appendix E: Table 5).

The third topic was whether teens who committed a serious crime should be tired and sentenced in a juvenile or adult court system. The scenario and evidence appear in Appendix D: Tables 1- 5. The fourth topic was whether kidneys should be allowed to be sold or limited to donation. The scenario and evidence appear in Appendix E: Tables 1 – 5.

*Evidence presentation*

During the third class session students in the supporting-evidence and mixed-evidence groups were presented the first piece of evidence. (The control group was presented no evidence.) The third class session is the first class session of six in which, students are paired with a same-sided partner to engage in a dialog with an opposing-side pair. At each of the six dialog sessions (sessions 3–8), each dyad was presented an index card on which appeared a piece of evidence. The coach said, "Try to say something about this evidence in your dialog today." Thus, each dyad was presented in total six unique pieces of evidence for the topic.

At the beginning of the fourth class session (second dialog) students in the experimental classes were introduced to the "Evidence Check-Out Desk," which remained in operation thereafter. Its purpose was to enable students to access evidence from previous sessions. Beginning with topic 3, students from all classes were also able to access evidence that had been secured based on their own student-generated questions and answers.

*Year-end assessment*

In a year-end assessment following completion of Topic 4 all students wrote extemporaneously on a novel topic – Should cigarette sales be banned in the United States? Students were prompted to "write a persuasive essay on the topic of whether cigarette sales should be banned in the United States" and given an entire class period to complete the task. Across all conditions, students had access to the same list of mixed evidence (Table 7). Students

were told simply that this list contained the some information that might be useful to them in writing their essays. They were given no instruction or further encouragement to use it.

Table 7. *Evidence made available to students on the cigarette topic.*

| |
|---|
| *Evidence # 1:* The nicotine in cigarettes causes fast-acting chemical reactions in your brain that have been shown to relieve anxiety and nervousness. |
| *Evidence # 2:* Each year, an estimated 443,000 people die prematurely from smoking or exposure to secondhand smoke, and another 8.6 million live with a serious illness caused by smoking. |
| *Evidence # 3:* Thousands of farmers in the U.S. make their living from farming tobacco leaves, and the tobacco industry contributes an average of $16.5 billion to the economy in tax revenue each year. |
| *Evidence # 4:* George Harrison, a musician for the Beatles, was a smoker and died of lung cancer at the age of 58. |
| *Evidence # 5:* A woman named Helen Faith Reichert currently lives in NYC; she is 108 years old and has been smoking half a pack of cigarettes every day for over 80 years. |
| *Evidence # 6:* As much as $96 billion a year is estimated lost in medical costs and lost worker productivity due to tobacco use. |
| *Evidence # 7:* An estimated 17 million Americans try to quit smoking each year, and about 8% of them succeed. |

# CHAPTER 3

RESULTS

Analyses in this chapter address the final essays students wrote for each of the four topics addressed over the academic year.

## *Length of essays*

Each essay was divided into idea units, henceforth referred to as segments. The author and another coder blind to condition segmented 124 essays by students who were excluded from the final sample due to absence. Inter-rater reliability on segmenting was achieved, with a 94% agreement, and the author proceeded with segmenting the remaining essays.

The first question addressed was whether essays differed in length (defined by number of segments) across the three groups (mixed-evidence, supporting-evidence, and control groups) and across time (essays 1 – 4). There were no outliers in the data, as determined by examination of the studentized residuals for segments having been calculated and any residuals greater than +3 or less than -3 identified. To investigate if skewness was a concern standardized scores were calculated (Appendix G, Table 1). Skewness was a concern for the mixed-evidence group topic 4 essay and three essays in the supporting-evidence group: topic 2, topic 3, and topic 4. Kurtosis (how peaked and how skewed a distribution is) was of concern for two time points (Appendix G, Table 1); both in the supporting-evidence group in the topics 3 and 4 essays.

Table 8. *Mean number of segments in final topic essays by group and time.*

| | | Topic | Mean | (Std. dev.) | *N* = |
|---|---|---|---|---|---|
| Groups | Mixed-evidence | 1 | 5.11 | (2.06) | 18 |
| | | 2 | 5.94 | (2.49) | 16 |
| | | 3 | 3.05 | (1.78) | 19 |
| | | 4 | 7.84 | (2.99) | 19 |
| | Supporting-evidence | 1 | 3.94 | (2.30) | 17 |
| | | 2 | 4.38 | (3.42) | 16 |
| | | 3 | 3.16 | (2.41) | 19 |
| | | 4 | 6.50 | (3.76) | 16 |
| | Control | 1 | 4.11 | (1.45) | 19 |
| | | 2 | 6.24 | (3.47) | 17 |
| | | 3 | 3.30 | (1.75) | 20 |
| | | 4 | 5.61 | (2.83) | 18 |
| | All groups combined | 1 | 4.39 | (1.99) | 54 |
| | | 2 | 5.53 | (3.21) | 49 |
| | | 3 | 3.16 | (1.97) | 58 |
| | | 4 | 6.60 | (3.35) | 53 |

A two-way repeated measures analysis of variance (ANOVA) was performed to determine the effects of group (between subjects factor) and time (within subjects factor) on the dependent variable number of segments. Analysis of the studentized residuals showed there was normality in the distribution ($p > 0.05$) except for the control group for topic 1 essays ($M = 4.11$; $p = 0.008$), as assessed by Shapiro-Wilk's test. The results also revealed there was sphericity for the interaction term (classroom condition by time), as assessed by Mauchly's test of sphericity ($p > 0.05$). As ANOVA has been found to be robust to violations of normality, we chose to proceed with the analyses with caution.

There was no interaction between group and time on number of segments, $F$ (6, 30) = 1.452, $p$ =0.228, partial $\eta^2$= 0.225. There was no effect of group, $F$ (2, 10) = 0.008, $p$ =0.992, partial eta squared = 0.002, but an effect of time, $F$ (3, 15) = 9.3, $p$ =0.001, partial eta squared =

0.65, as shown in Table 8. However, no pairwise comparisons were significant. Number of segments accordingly was treated as non-varying across topics.

***Types of evidence***

A segment was counted as evidence-based if evidence cited in the segment is widely available and/or a disagreement about it could be resolved by empirical investigation. The most frequent type of evidence appearing in evidence-based segments is the "shared" evidence presented in the two experimental conditions – 90% of evidence-based segments. These percentages are shown by group in Table 9. Two other types of evidence-based segments appear in Table 9. While engaged in topics 3 and 4 all students were invited to submit their own questions to secure answers that might assist them. These generated answers that are referred to as "student-generated evidence". A third type of evidence-based segment contained evidence the writer drew on from personal knowledge. (As seen in Table 9, shared evidence was not available to the control group. They were limited to student-generated or personal evidence.)

Table 9. *Overall percentage usage of evidence types by groups (times combined).*

| | Groups | | | |
|---|---|---|---|---|
| | Mixed-evidence | Supporting-evidence | Control | |
| Percentage of shared evidence | 48% | 42% | 0% | 90% |
| Percentage of student-generated evidence | 3% | 0% | 2% | 5% |
| Percentage of personal evidence | 1% | 3% | 1% | 5% |
| | 52% | 45% | 3% | 100% |

***Use of evidence-based segments***

Of the 58 students, 45 (78%) employed evidence (successfully or unsuccessfully) at least once in any of their topic essays. All 13 of the students who never employed evidence were from the control group. The number of students employing evidence at least one time increased from topic 1 (52%) to topic 2 (55%) to topic 3 (62%) to topic 4 (66%). The mean numbers and percentages of students including segments in which evidence appeared across groups and topics appear in Table 10.

Table 10. *Mean number of evidence-based segments and percentages of students using evidence at least one time by group and time.*

| | | Topics | Mean number of evidence-based segments | | | Percentages of students using evidence at least one time | |
|---|---|---|---|---|---|---|---|
| | | | Mean | Percentages of segments that were evidence-based | (Std. dev.) | Mean percentages | (Std. dev.) |
| Groups | Mixed-evidence | 1 | 1.39 | 27% | (1.29) | 67% | (0.49) |
| | | 2 | 2.00 | 34% | (1.16) | 88% | (0.34) |
| | | 3 | 1.74 | 58% | (0.93) | 89% | (0.32) |
| | | 4 | 3.79 | 48% | (2.15) | 95% | (0.23) |
| | Supporting-evidence | 1 | 2.65 | 67% | (1.87) | 94% | (0.24) |
| | | 2 | 1.56 | 36% | (1.15) | 81% | (0.40) |
| | | 3 | 1.58 | 50% | (1.35) | 68% | (0.48) |
| | | 4 | 2.44 | 38% | (1.15) | 100% | (0.00) |
| | Control | 1 | 0.00 | 0% | (0.00) | 0% | (0.00) |
| | | 2 | 0.00 | 0% | (0.00) | 0% | (0.00) |
| | | 3 | 0.30 | 9% | (0.47) | 30% | (0.47) |
| | | 4 | 0.06 | 1% | (0.24) | 6% | (0.24) |
| | All groups combined | 1 | 1.30 | 30% | (1.67) | 52% | (0.50) |
| | | 2 | 1.16 | 21% | (1.26) | 55% | (0.50) |
| | | 3 | 1.19 | 38% | (1.16) | 62% | (0.49) |
| | | 4 | 2.11 | 32% | (2.13) | 66% | (0.48) |

To investigate skewness, the standardized score was calculated, as was kurtosis (Appendix I, Table 2). Skewness and kurtosis are a concern for three essays in the mixed-evidence group for topic 2, topic 3 and topic 4 essays. Two essays in the supporting-evidence group were of concern: topic 1 and the topic 2 essays given differences. Only one essay in the control group was of concern for skewness and kurtosis - topic 4 essay.

A Cochran's $Q$ test ($Q = 41.02$, $df = 11$) showed a significant difference in proportion of students who employed evidence at least one time, $p < 0.001$. There was no time effect in the mixed-evidence or supporting-evidence groups, but there was an effect for the control group (Cochran's $Q = 11.33$, $df = 3$), $p = 0.01$ (Table 10). This is not surprising as no evidence was employed in any topic 1 or topic 2 essays by any student in the control group (Appendix I, Tables 3 & 4). (Results were comparable for a parametric analysis.)

A further question is whether students increased frequency of use of evidence-based claims (Table 10). To investigate the concern of skewness of the distributions, the standardized score was calculated, as was kurtosis (Appendix J, Table 1). Skewness and kurtosis were a concern for only one essay in the control group - topic 4.

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution overall test revealed a significant difference between groups over time, $F(2, 189) = 124.028$, $p < 0.001$, (Appendix J, Tables 2.1-2.5) for evidence-based segments. An interaction was found between group and time, $F(2, 189) = 6.750$, $p = 0.001$. The fixed effect of time was significant in the overall GLMM model, $F(1, 189) = 7.989$, $p = 0.005$. There was also a significant difference between groups as a fixed effect in the overall model, $F(2, 189) = 13.504$, $p < 0.001$. A pairwise contrast using a sequential Bonferroni analysis revealed a significant mean difference

in the frequency of evidence-based segments between the mixed-evidence group, 2.143 ($p < 0.001$) and the control group. Similarly, students in the supporting-evidence group used evidence-based segments on average 1.954 ($p < 0.001$) more times than the average of students in the control group.

***Types of evidence-based claims***

A coding system was developed for further classifying evidence-based segments by the way in which the evidence was used, i.e., its argumentive function. The author and one other coder blind to condition applied the coding system to 124 essays excluded from this student's sample due to absences. Inter-rater reliability was found to be satisfactory with a Cohen's Kappa = 0.82 ($p < 0.001$), 95% CI (0.78, 0.86). The author therefore examined and coded the remaining essays.

All evidence-based segments were coded into one of the categories in Table 11. The major distinction is whether they were used functionally or non-functionally (see Table 11). Segments in the non-functional category are those in which the writer attempted to use evidence but did not do so successfully. Examples from student essays are shown in Table 13.

Table 11. *Coding system for evidence-based segments.*

| *Level* | *Category* | *Category definition* |
|---|---|---|
| Functional evidence-based segments | Argumentively functionally used evidence-based claim | Evidence used functionally to support a claim. |
| | | |
| Non-functional evidence-based segments | Attempted but unsuccessful use of evidence to justify a claim | Evidence cited in connection with a claim for the apparent purpose of justifying the claim without it being clear how the evidence serves this function. |
| | | Evidence cited in connection with a claim for the apparent purpose of justifying the claim but does so only by misinterpreting the evidence or otherwise making an inference that is unwarranted. |
| | Non-functional citation of evidence | Evidence cited but is not connected to any claim. [Evidence may be a partial or complete verbatim copy of evidence (or evidence question & answer) or a paraphrase that captures its meaning and is a reasonably accurate representation of the evidence.] |
| | Mischaracterized evidence | Evidence cited incorrectly in a way that substantively misrepresents its meaning and therefore doesn't function successfully. |

An exploratory analysis was performed to investigate whether skewness and kurtosis were a concern. Skewness and kurtosis was a concern for the supporting-evidence group topic 1, as well as two essays from the control group – topic 3 and topic 4 essays (Appendix K, Table 1).

As seen in Table 12, students in the control group never showed any functional uses of evidence in topic 1 or topic 2 essays. Students in the mixed-evidence and the supporting-evidence groups consistently did so.

Table 12. *Mean number of functional uses of evidence by group and time.*

| | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Mean | 0.83 | 1.44 | 1.42 | 3.16 | 1.47 | 1.31 | 1.26 | 1.75 | 0.00 | 0.00 | 0.15 | 0.06 |
| (Std. dev.) | (0.86) | (1.09) | (0.96) | (1.68) | (1.66) | (1.14) | (1.19) | (0.93) | (0.00) | (0.00) | (0.37) | (0.24) |

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution overall test revealed a significant difference across groups over time, $F$ (2, 208) = 97.51, $p$ < 0.001 (Appendix K, Tables 2.1-2.5). An interaction was found between group and time, $F$ (2, 208) = 11.557, $p$ < 0.001. The fixed effect of time was significant in the overall GLMM model, $F$ (1, 208) = 16.595, $p$ < 0.001. There was also a significant difference between the groups as a fixed effect in the overall model, $F$ (2, 208) = 6.813, $p$ = 0.001. A pairwise contrast using a sequential Bonferroni analysis revealed a significant mean difference in the frequency of functionally used evidence statements between the mixed-evidence group, 1.664 ($p$ < 0.001) and the control group. Similarly, students in the supporting-evidence group successfully employ functional evidence-based statements on average 1.388 ($p$ < 0.001) more times than the average of students in the control group.

***How was functional evidence used?***

When a segment included the functional use of evidence (or attempted functional use of evidence) (whether shared evidence, student-generated evidence or personal evidence) this evidence could be used to serve different argument functions. Table 13 gives examples. Frequency of use of each type is summarized in Tables 14, 15, 16, and 17.

Table 13. *Examples from the coding system for evidence-based segments.*

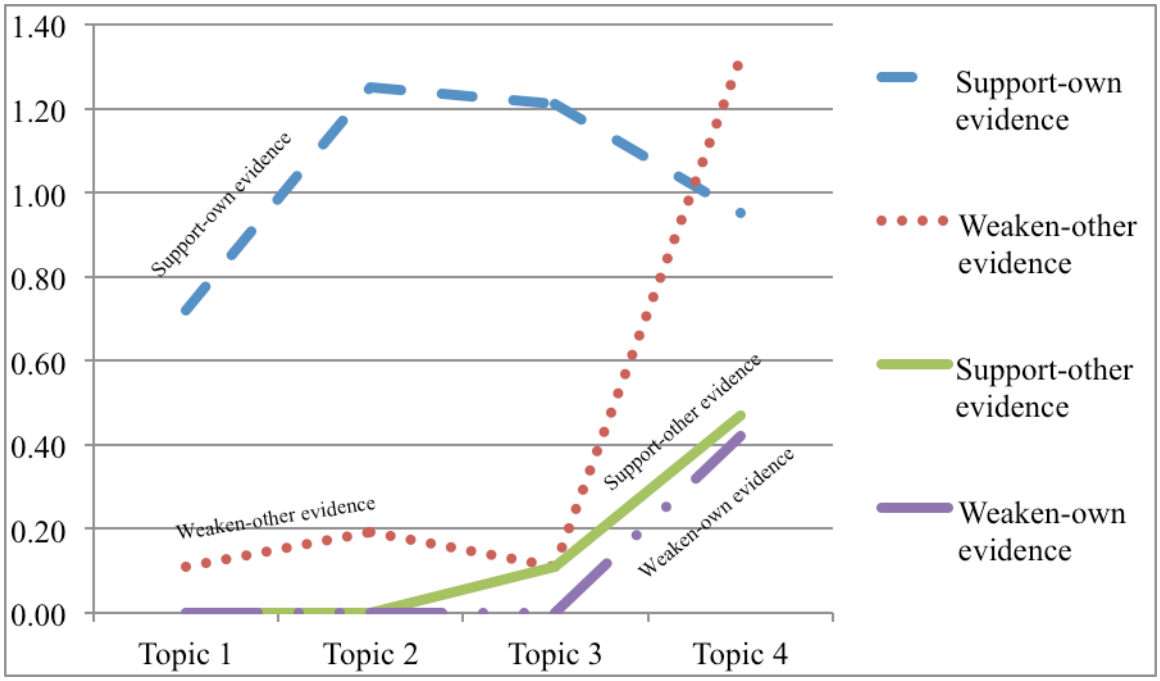
| *Level* | *Category* | *Category definition* | *Examples from kidney sale essays:* | |
|---|---|---|---|---|
| | | | *Donate is the preferred option* | *Selling is the preferred option* |
| Functionally used evidence-based segments | Support-own evidence | An evidence statement serving to functionally support one's own position. | People should donate there kidney because it's done very quickly after death and the donor's family agrees. This tells me that if you donate a kidney to a person the doctor will put it on quickly until they die. | Furthermore, people that sell their kidneys need the money the receive because almost always they are very poor and have only few ways to earn money. |
| | Weaken-other evidence | An evidence statement serving to functionally critique and thereby weakens the opponent's position. | I think that people should donate also because how are people that are poor going to afford a kidney that most people sell at a really high prize like $10,000 for example. | The evidence says the only option is to wait for a donor and hope that there will be one soon. This means that people waiting for kidney donations suffer. |
| | Support-other evidence | An evidence statement serving to functionally acknowledge strengths of the opponent's position. | One reason it should be legal is that in 2005, 3000 people in the USA died while waiting for a donated kidney. | I think they should donate to because if they donate it would be a faster way to give to the poor people that only have a few ways to earn money. |
| | Weaken-own evidence | An evidence statement serving to functionally acknowledge weaknesses of one's own position. | but in France they can choose to donate their organs without having to tell anyone. In France this is good because in the US if you want to be an organ donor you have to say that you want to be but in France you're automatically an organ donor. | The evidence also says someone can put out a notice looking for a kidney but they can't offer to pay money for the kidney. This means that someone might go to jail if they sell their kidney. |

| | | | | |
|---|---|---|---|---|
| Non-functionally used evidence-based segments | Attempted but unsuccessful use of evidence to justify a claim | Evidence cited in connection with a claim for the apparent purpose of justifying the claim without it being clear how the evidence serves this function. | If you have no choice, Then go to the cemetery and take a dead persons kidney, of course with that person's family permission. | Most people are willing to sell it then to donate it like for example someone puts a ad saying they would pay 10, 000 for a kidney the person would accept. |
| | | Evidence cited in connection with a claim for the apparent purpose of justifying the claim but does so only by misinterpreting the evidence or otherwise making an inference that is unwarranted. | | |
| | Non-functional citation of evidence | Evidence cited but is not connected to any claim. [Evidence may be a partial or complete verbatim copy of evidence (or evidence question & answer) or a paraphrase that captures its meaning and is a reasonably accurate representation of the evidence.] | Many states encourage donations by allowing the consent to be noted on a person's driver's license. | Can people who need a kidney find someone who is willing to sell them one? Yes, it is illegal to sell kidneys in the USA, but a person who wants to buy a kidney can travel to another country where it is not against the law and buy one there. |
| | Mischaracterized evidence | Evidence cited incorrectly in a way that substantively misrepresents its meaning and therefore doesn't function successfully. | One reason why I think so is because people need at least 2 working kidneys to live. | |

*Summary of usage of evidence-based types*

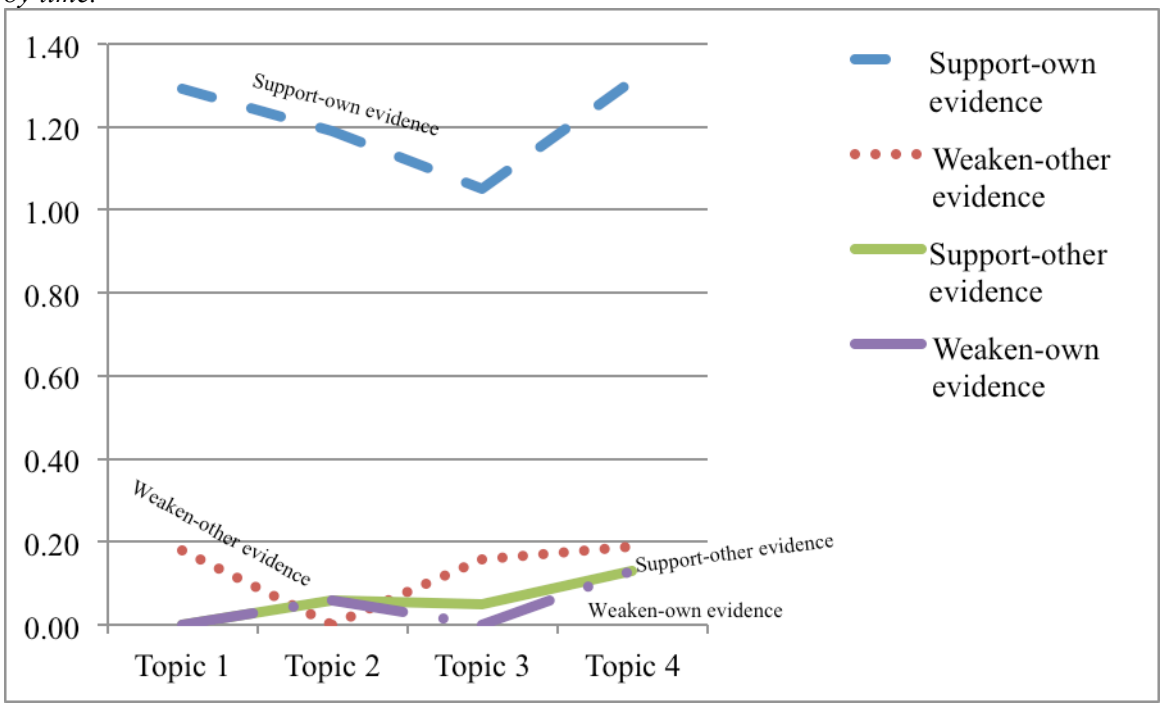
A summary of mean usage of frequencies by type and time is portrayed in Figure 1 for the mixed-evidence group and Figure 2 for the supporting-evidence group. The control group is omitted because that group showed no use of evidence until time 3 essays and such use remained minimal. Following Figures 1 and 2 we present statistical analyses of these trends for each evidence type separately.

Figure 1. *Mean number of functional evidence-based arguments made by the mixed-evidence group by time.*




Note. Overall number of segments did not differ by time.

Figure 2. *Mean number of functional evidence-based arguments made by the supporting-evidence group by time.*




Note. Overall number of segments did not differ by time.

*Support-own evidence-based segments*

Skewness and kurtosis were a concern for the supporting-evidence group topic 1 essays, as well as two essays from the control group - topic 3 and topic 4 essays (Appendix L, Table 1). Also skewness is of concern for the mixed-evidence group topic 1 essay.

As seen in Table 14, students in the control group never employed support-own evidence-based segments in – topic 1 or topic 2 essays. However, students in the mixed-evidence and the supporting-evidence groups consistently did so across essays.

Table 14. *Mean number and percentages showing support-own evidence-based segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.72 | 1.25 | 1.21 | 0.95 | 1.29 | 1.19 | 1.05 | 1.31 | 0.00 | 0.00 | 0.15 | 0.06 |
| | (Std. dev.) | (0.89) | (0.93) | (0.79) | (0.91) | (1.61) | (0.98) | (1.13) | (1.01) | (0.00) | (0.00) | (0.37) | (0.24) |
| Used at least one time | Mean percentages | 56% | 75% | 84% | 63% | 71% | 75% | 58% | 81% | 0% | 0% | 15% | 6% |
| | (Std. dev.) | (0.51) | (0.45) | (0.38) | (0.49) | (0.47) | (0.45) | (0.51) | (0.40) | (0.00) | (0.00) | (0.37) | (0.24) |

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution showed no two-way interaction between group and time, $F$ (2, 208) = 0.12, $p$ =0.887; thus, the interaction term was removed. The overall test of the model revealed a significant difference between group in the production of supporting-own claims, $F$ (2, 210) = 64.951, $p < 0.001$, (Appendix L, Tables 3.1-3.6). The fixed effect of time was not significant in the overall GLMM model, $F$ (1, 210) = 2.506, $p = 0.115$. There was a significant difference between group as a fixed effect in the overall model, $F$ (2, 210) = 64.915, $p < 0.001$. Pairwise contrasts using a sequential Bonferroni analysis revealed a significant mean difference ($p < 0.001$) in the

frequency of support-own evidence statements between students in the mixed-evidence group ($M$ = 1.026, $SE$ = 0.119) and the control group ($M$ = 0.054, $SE$ = 0.027), as well as between the supporting-evidence group ($M$ = 1.207, $SE$ = 0.133) and the control group, $p < 0.001$.

A Cochran's $Q$ test ($Q$ = 29.19, $df$ = 11) showed a significant difference in proportion of students who employed support-own evidence at least one time, $p = 0.002$. There was no time effect in the mixed-evidence, supporting-evidence or control groups (Table 14). This is not surprising as no evidence was employed in any topic 1 or topic 2 essays by any student in the control group. However, students in the mixed-evidence and the supporting-evidence groups consistently used support-own evidence based segments at least one time across the essays. There is a significant difference in the proportion of students who employed support-own evidence at least one time in their essays; however, there is no difference in the mean percentage between group and time. (Results were comparable for a parametric analysis.)

*Weaken-other evidence-based segments*

Skewness and kurtosis were a concern for three essays in the mixed-evidence group of topic 1, topic 2, and topic 3 essays. Three of the essays in the supporting-evidence group were of concern as the topic 1, the topic 3, and topic 4 essays (Appendix L, Table 1).

Table 15. *Mean number and percentages showing weaken-other evidence-based segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.11 | 0.19 | 0.11 | 1.32 | 0.18 | 0.00 | 0.16 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (Std. dev.) | (0.32) | (0.54) | (0.32) | (1.16) | (0.39) | (0.00) | (0.50) | (0.40) | (0.00) | (0.00) | (0.00) | (0.00) |
| Used at least one time | Mean percentages | 11% | 13% | 11% | 74% | 18% | 0% | 11% | 19% | 0% | 0% | 0% | 0% |
| | (Std. dev.) | (0.32) | (0.34) | (0.32) | (0.45) | (0.39) | (0.00) | (0.32) | (0.40) | (0.00) | (0.00) | (0.00) | (0.00) |

Students in the control group never employed any weaken-other evidence-based segments, as seen in Table 15. However, students in the mixed-evidence and the supporting-evidence groups consistently did so, with the exception of the supporting-evidence group during topic 2 ($M$= 0.00) essays.

Using a Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution overall test revealed a significant difference between groups over time, $F$ (2, 152) = 14.884, $p < 0.001$, (Appendix L, Tables 4.1-4.5). An interaction was found between group and time, $F$ (2, 152) = 3.786, $p$ = 0.025. The fixed effect of group was not significant in the overall model, $F$ (2, 152) = 1.081, $p$ = 0.342. The fixed effect of time was significant in the overall GLMM model, $F$ (1, 152) = 7.401, $p$ = 0.007. Pairwise contrasts using a sequential Bonferroni analysis revealed a significant mean difference in the frequency of weaken-other evidence segments between the mixed-evidence ($M$ = 0.435, SE = 0.096) and the supporting-evidence groups ($M$ = 0.133, SE = 0.044), $p$ = 0.006, 95% C.I. (0.081, 0.525), as well as between the mixed-evidence and the control ($M$ = -0.000, SE = 0.00) groups, $p < 0.001$, 95% C.I. (0.204, 0.666). Also students in the supporting-evidence group successfully employ weaken-other evidence segments on average 0.133 ($p$ = 0.006) more times than the average of students in the control group, 95% C.I. (0.033, 0.233).

A Cochran's $Q$ test (statistic of $Q = 45.774$, $df = 11$) showed a significant difference in proportion of students who employed weaken-other evidence at least one time, $p < 0.001$ (Appendix L, Tables 5, 6, 7, for all significant pairwise comparisons by group and time). There was no time effect in the supporting-evidence or control groups, but there was an effect for the mixed-evidence group ($Q = 20.455$, $df = 3$), $p < 0.001$) (Table 15). Students in the mixed-evidence and supporting-evidence groups consistently employed weaken-other evidence at least one time, while the students in the control group never employed any weaken-other evidence-based segments. Thus, there is a significant difference in the proportion of students who employed weaken-other evidence at least one time and there is a significant difference in the mean percentage across group and across time, as seen in Table 15. (Results were comparable for a parametric analysis.)

*Support-other evidence-based segments*

Skewness and kurtosis of the distributions were a concern for three essays in the supporting-evidence group of topic 2, topic 3 and topic 4 essays. Also two of the essays in the mixed-evidence group were of concern - topic 3 and topic 4 essays (Appendix L, Table 1).

Table 16. *Mean number and percentages showing support-other evidence-based segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.00 | 0.00 | 0.11 | 0.47 | 0.00 | 0.06 | 0.05 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (Std. dev.) | (0.00) | (0.00) | (0.32) | (0.69) | (0.00) | (0.25) | (0.23) | (0.34) | (0.00) | (0.00) | (0.00) | (0.00) |
| Used at least one time | Mean percentages | 0% | 0% | 11% | 37% | 0% | 6% | 5% | 13% | 0% | 0% | 0% | 0% |
| | (Std. dev.) | (0.00) | (0.00) | (0.32) | (0.49) | (0.00) | (0.25) | (0.23) | (0.34) | (0.00) | (0.00) | (0.00) | (0.00) |

As seen in Table 16, students in the control group never employed support-other evidence-based segments in the essays. Students in the mixed-evidence and the supporting-evidence groups began the year never employing support-other evidence-based segments but with time there were more frequent employments of support-other segments.

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution overall test revealed a significant difference between groups over time in the use of support-other segments, $F$ (2, 152) = 5.851, $p$ = 0.004 (Appendix L, Tables 8.1-8.5). An interaction was found between group and time, $F$ (2, 152) = 3.364, $p$ = 0.037. The fixed effect of group was not significant in the overall GLMM model, $F$ (2, 152) = 1.074, $p$ = 0.344. The fixed effect of time was significant in the overall model, $F$ (1, 152) = 5.493, $p$ = 0.02. Pairwise contrasts using a sequential Bonferroni analysis revealed a significant mean difference ($p$ = 0.019) in the frequency of support-other evidence segments between the mixed-evidence ($M$ = 0.149, SE = 0.054) and the control groups ($M$ = -0.00, SE = 0.00).

A Cochran's $Q$ test (Q =18.097, $df$ = 11) showed no difference in proportion of students who employed support-other evidence at least one time, $p$ = 0.079 (Table 16). (Results were comparable for a parametric analysis.)

*Weaken-own evidence-based segments*

Skewness and kurtosis were a concern for the mixed-evidence group topic 4 essays, as well as two essays from the supporting-evidence group - topic 2 and topic 4 essays (Appendix L, Table 1). As seen in Table 17, weaken-own evidence-based segments were rare.

Table 17. *Mean number and percentages showing weaken-own evidence-based segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 0.06 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (Std. dev.) | (0.00) | (0.00) | (0.00) | (0.90) | (0.00) | (0.25) | (0.00) | (0.34) | (0.00) | (0.00) | (0.00) | (0.00) |
| Used at least one time | Mean percentages | 0% | 0% | 0% | 21% | 0% | 6% | 0% | 13% | 0% | 0% | 0% | 0% |
| | (Std. dev.) | (0.00) | (0.00) | (0.00) | (0.42) | (0.00) | (0.25) | (0.00) | (0.34) | (0.00) | (0.00) | (0.00) | (0.00) |

Using a Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution showed no two-way interaction between group and time, $F$ (2, 135) = 2.403, $p$ = 0.094; thus, the interaction term was removed. The overall test of the model revealed no differences between group in the production of weaken-own evidence claims, $F$ (2, 157) = 2.088, $p$ = 0.127 (Appendix L, Tables 9.1-9.6). The fixed effect of group was not significant in the overall GLMM model, $F$ (2, 157) = 2.088, $p$ = 0.127. The fixed effect of time was not significant in the overall GLMM model, $F$ (1, 157) = 2.927, $p$ = 0.089. No pairwise contrasts were significant.

A Cochran's $Q$ test ($Q$ = 17.00, $df$ = 11) showed no difference in proportion of students who employed weaken-own evidence at least one time, $p$ = 0.108 (Table 17). (Results were comparable for a parametric analysis.)

***Do results change if we include all arguments, not just evidence-based?***

All segments that did not include the incorporation of evidence into the idea unit were coded as non-evidence-based segments. Examples appear in Table 18. If a statement was non-evidence-based it was coded into one of the following six categories:

(1) *Support-own.*

(2) *Weaken-other.*

(3) *Support-other.*

(4) *Weaken-own.*

(5) *No argument.* Assigned when the unit does not serve any of the preceding functions.

(6) *Repeat.* Assigned when the unit duplicates an earlier one in the essay.

Note these first four categories are the same function as previous – except that they lack evidence. Analyses parallel to those for functional evidence-based segments were performed.

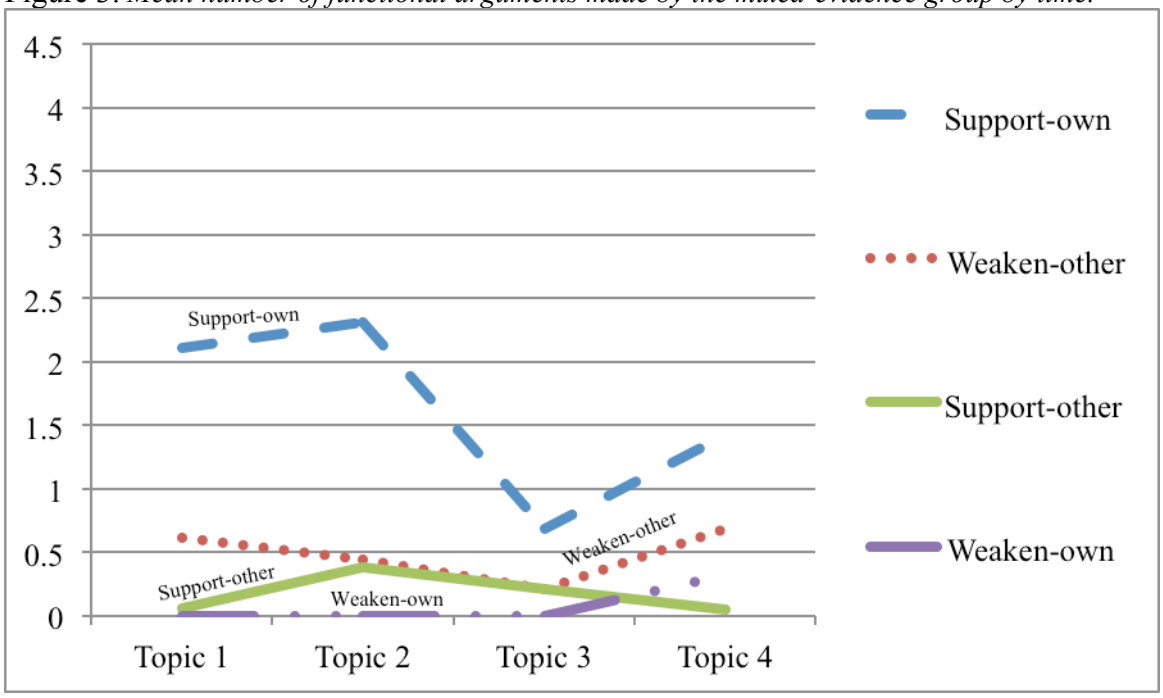
Table 18. *Examples from the coding system for non-evidence-based segments.*

| *Level* | *Category* | *Examples from kidney sale essays* | |
|---|---|---|---|
| | | *Donate is the preferred option* | *Selling is the preferred option* |
| Functionally used non-evidence-based segments | Support-own | and also if you donate you're not getting something out of it, you're doing it because you want to. | Dear Editor, I believe people should be able to sell their kidneys because it's a faster process. |
| | Weaken-other | If you sell and you put it at a really high price people who need it but can't afford it won't be able to get a kidney and they will die. | because if people wait for somebody to donate them a kidney there is people in front of them so they going to have to wait so in that waiting process people can die. |
| | Support-other | The other side might say that some people might give them money because they deserve it. | On the other hand, the other side say "that if you donate your kidney your giving them a favor because your helping them". |
| | Weaken-own | A problem with donating is that if healthy people donate kidney, then what happens to them if then their other kidney doesn't work? | One thing that's bad is that it's unfair for people who are poor and can't afford it. This means some people will be segregated. |
| | | | |
| Non-functionally used non-evidence- based segments | No argument | People should donate because donating is better than selling. | That's why I think you should sell a kidney instead of donating it. |
| | Repeat | People should sell their kidneys because how I said it is a faster process. | |

*Summary of usage of argument types*

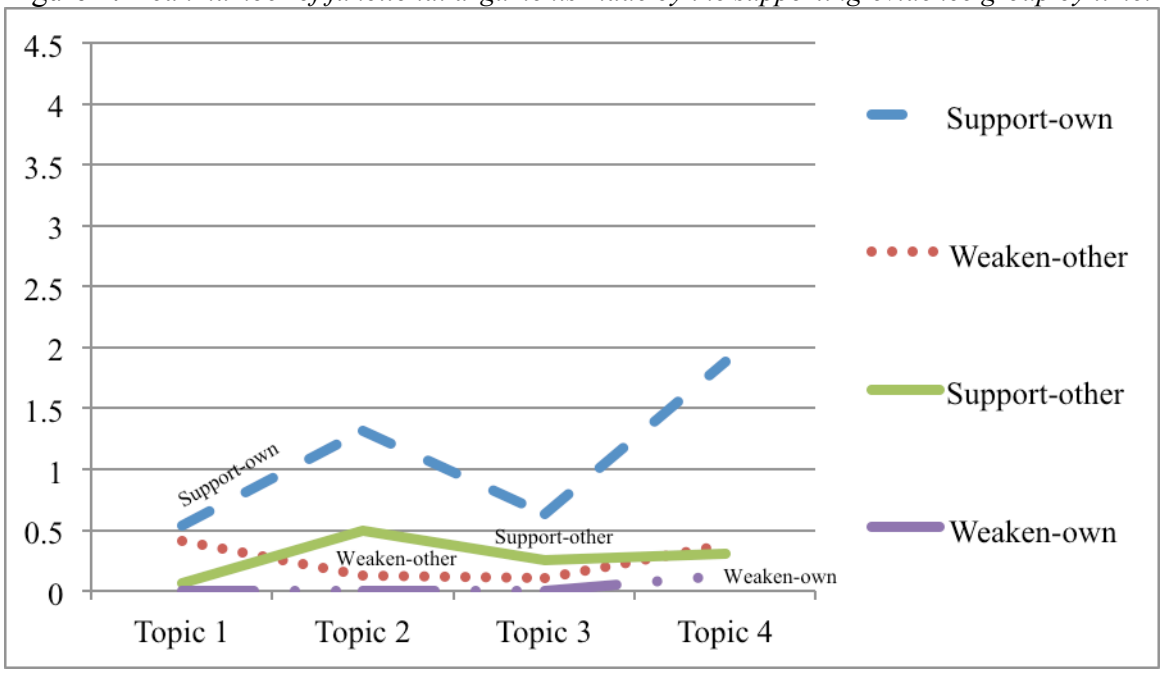
A summary of mean usage of frequencies by argument type and time is portrayed in Figure 3 for the mixed-evidence group, Figure 4 for the supporting-evidence group, and Figure 5 for the control group. Following Figures 3, 4, and 5 we present statistical analyses of these trends for each argument type separately.

Figure 3. *Mean number of functional arguments made by the mixed-evidence group by time.*



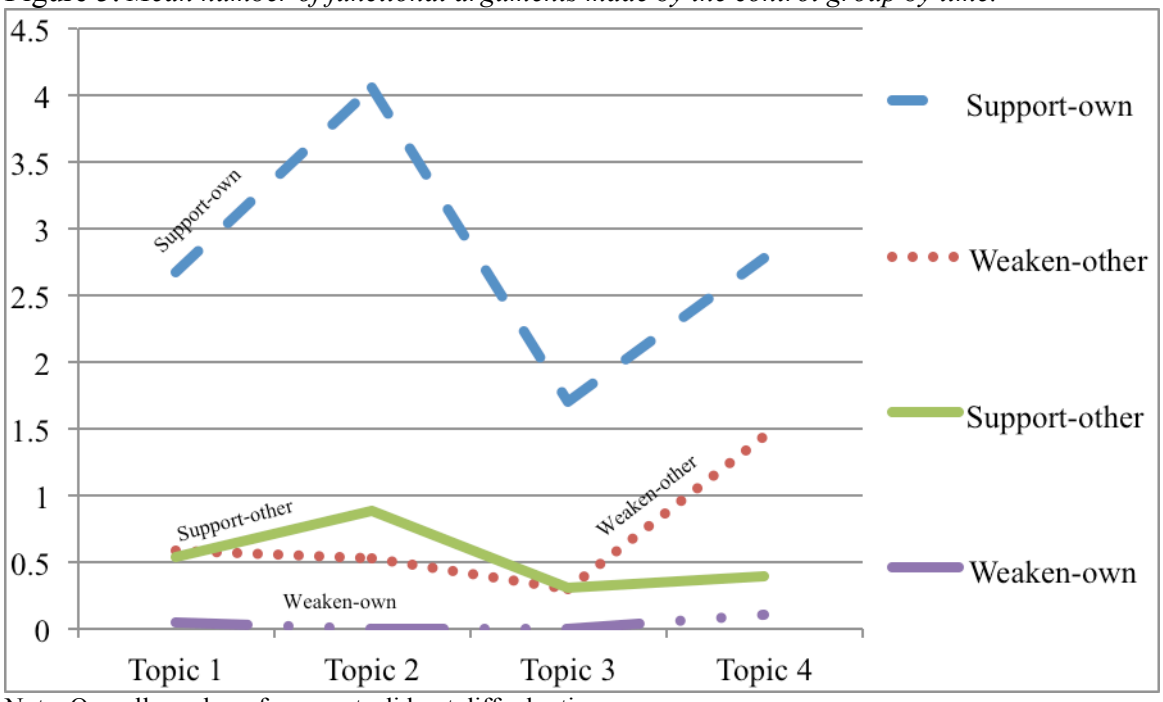

Note. Overall number of segments did not differ by time.

Figure 4. *Mean number of functional arguments made by the supporting-evidence group by time.*




Note. Overall number of segments did not differ by time.

Figure 5. *Mean number of functional arguments made by the control group by time.*




Note. Overall number of segments did not differ by time.

*Support-own segments*

Skewness and kurtosis were a concern for essays from the supporting-evidence group topic, topic 2, topic 3, and topic 4 essays (Appendix M, Table 1). As well as topic 3 essays from the mixed-evidence group and the topic 4 essays from the control group.

Table 19. *Mean number and percentages showing support-own argument segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 2.11 | 2.31 | 0.68 | 1.42 | 0.53 | 1.31 | 0.63 | 1.88 | 2.68 | 4.06 | 1.70 | 2.78 |
| | (Std. dev.) | (1.71) | (2.30) | (0.75) | (1.22) | (0.80) | (1.70) | (1.12) | (2.60) | (1.29) | (2.88) | (1.26) | (1.63) |
| Used at least one time | Mean percentages | 63% | 78% | 75% | 58% | 100% | 41% | 63% | 32% | 100% | 100% | 94% | 75% |
| | (Std. dev.) | (0.50) | (0.43) | (0.45) | (0.51) | (0.00) | (0.51) | (0.50) | (0.48) | (0.00) | (0.00) | (0.24) | (0.44) |

Using a Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution overall test revealed a significant difference between groups over time in the production of support-own segments, $F$ (2, 206) = 15.583, $p < 0.001$ (Appendix M, Tables 3.1-3.5). An interaction was found between group and time, $F$ (2, 206) = 9.017, $p < 0.001$. The fixed effect of time was not significant in the overall model, $F$ (1, 206) = 1.437, $p = 0.232$. The fixed effect of group was significant in the overall GLMM model, $F$ (2, 206) = 18.272, $p < 0.001$. Pairwise contrasts using a sequential Bonferroni analysis revealed a significant mean difference in the frequency of support-own segments between the mixed-evidence ($M$ = 1.468, SE = 0.215) and the control ($M$ = 2.579, SE = 0.244) groups, $p = 0.002$, as well as between the mixed-evidence and the supporting-evidence ($M$ = 0.837, SE = 0.194) groups, $p = 0.031$. Also there was a significant mean difference, - 1.742 ($p < 0.001$), between the supporting-evidence and the control groups on the successful employment of support-own segments, 95% C.I. (-2.496, -0.989).

As seen in Table 19 of the mean percentages, students in all of the groups employed support-own claims at least one time in their essays throughout the year and all groups decreased their overall usage of support-own claims being employed at least once in the essays as the year progressed. However, there was no difference in the proportion of students who employed support-own claims at least one time in their essays as shown by a Cochran's $Q$ test ($Q$ = 18.389, $df$ = 11), $p = 0.073$. (Results were comparable for a parametric analysis.)

*Weaken-other segments*

Skewness and kurtosis were a concern for three essays in the mixed-evidence group of topic 1, topic 2, and topic 3 essays (Appendix M, Table 1). In the supporting-evidence group the topic 1, 2, 3 and 4 essays were of concern. Two essays in the control group were of concern - topic 2 and topic 3 essays.

Table 20. *Mean number and percentages showing weaken-other argument segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.61 | 0.44 | 0.21 | 0.68 | 0.41 | 0.13 | 0.11 | 0.38 | 0.58 | 0.53 | 0.30 | 1.44 |
| | (Std. dev.) | (1.15) | (0.73) | (0.54) | (0.82) | (0.71) | (0.34) | (0.32) | (0.72) | (0.77) | (0.87) | (0.57) | (1.29) |
| Used at least one time | Mean percentages | 28% | 31% | 16% | 47% | 29% | 13% | 11% | 25% | 42% | 35% | 25% | 72% |
| | (Std. dev.) | (0.46) | (0.48) | (0.38) | (0.51) | (0.47) | (0.34) | (0.32) | (0.45) | (0.51) | (0.49) | (0.44) | (0.46) |

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution showed no two-way interaction between group and time, $F$ (2, 208) = 2.767, $p$ =0.065; thus, the interaction term was removed. The overall test of the model revealed a significant difference between group in the production of weaken-other claims, $F$ (2, 210) = 8.649, $p < 0.001$, (Appendix M, Tables 4.1-4.6). The fixed effect of time was not significant in the overall GLMM model, $F$ (1, 210) = 3.311, $p = 0.07$. There was a significant difference of group as a fixed effect in the overall model, $F$ (2, 210) = 8.649, $p < 0.001$. Pairwise contrasts using a sequential Bonferroni analysis revealed a significant mean difference ($p = 0.041$) in the frequency of weaken-other segments between students in the mixed-evidence ($M = 0.485$, $SE = 0.081$) and the

supporting-evidence ($M = 0.252$, $SE = 0.059$) groups, as well as between the supporting-evidence and the control ($M = 0.702$, $SE = 0.097$) groups, $p < 0.001$.

A Cochran's $Q$ test ($Q = 15.795$, $df = 11$) showed no difference in proportion of students who employed weaken-other claims at least one time, $p = 0.149$ (see Table 20). (Results were comparable for a parametric analysis.)

*Support-other segments*

Skewness and kurtosis were a concern for the mixed-evidence group topics 1, 2, 3, and 4 essays (Appendix M, Table 1). It is also a concern for the supporting-evidence group topics 1, 2, and 3 essay, as well as three essays from the control group – topics 2, 3, and 4 essays.

Table 21. *Mean number and percentages showing support-other argument segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.06 | 0.38 | 0.21 | 0.05 | 0.06 | 0.50 | 0.26 | 0.31 | 0.53 | 0.88 | 0.30 | 0.39 |
| | (Std. dev.) | (0.24) | (0.62) | (0.42) | (0.23) | (0.24) | (0.97) | (0.56) | (0.48) | (0.69) | (1.17) | (0.57) | (0.61) |
| Used at least one time | Mean percentages | 6% | 31% | 21% | 5% | 6% | 25% | 21% | 31% | 42% | 47% | 25% | 33% |
| | (Std. dev.) | (0.24) | (0.48) | (0.42) | (0.23) | (0.24) | (0.45) | (0.42) | (0.48) | (0.51) | (0.51) | (0.44) | (0.49) |

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution showed no two-way interaction between group and time, $F$ (2, 208) = 1.215, $p$ =0.299; thus, the interaction term was removed. The overall test of the model revealed a significant difference between group in the production of support-other claims, $F$ (2, 210) = 6.429, $p = 0.002$, (Appendix M, Tables 5.1-5.6). The fixed effect of time was not significant in the overall GLMM

model, $F$ (1, 210) = 0.731, $p$ = 0.393. There was a significant difference between group as a fixed effect in the overall model, $F$ (2, 210) = 6.429, $p$ = 0.002. Pairwise contrasts using a sequential Bonferroni analysis revealed a significant mean difference ($p$ = 0.001) in the frequency of support-other segments between the students in the mixed-evidence ($M$ = 0.168, $SE$ = 0.048) and the students in the control ($M$ = 0.508, $SE$ = 0.083) groups.

A Cochran's $Q$ test ($Q$ = 25.54, $df$ = 11) showed a significant difference in the proportion of students who employed support-other statements at least one time, $p$ = 0.008. However, no pairwise comparisons were significant. As seen in Table 21, the control group consistently employed at least one time in the essays support-other claims at a higher mean percentage than the mixed-evidence and the supporting-evidence groups. (Results were comparable for a parametric analysis.)

*Weaken-own segments*

Skewness and kurtosis were a concern for the mixed-evidence group topic 4 essays, as well as topic 4 essays in the supporting-evidence group (Appendix M, Table 1). Also there were two essays in the control group that were of concern – topics 1 and 4 essays.

Table 22. *Mean number and percentages showing weaken-own argument segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | Topics | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Frequency | Mean | 0.00 | 0.00 | 0.00 | 0.32 | 0.00 | 0.00 | 0.00 | 0.13 | 0.05 | 0.00 | 0.00 | 0.11 |
| | (Std. dev.) | (0.00) | (0.00) | (0.00) | (0.58) | (0.00) | (0.00) | (0.00) | (0.34) | (0.23) | (0.00) | (0.00) | (0.32) |
| Used at least one time | Mean percentages | 0% | 0% | 0% | 26% | 0% | 0% | 0% | 13% | 5% | 0% | 0% | 32% |
| | (Std. dev.) | (0.00) | (0.00) | (0.00) | (0.45) | (0.00) | (0.00) | (0.00) | (0.34) | (0.23) | (0.00) | (0.00) | (0.54) |

A Generalized Linear Mixed Model (GLMM) using the Poisson probability distribution showed no two-way interaction between group and time, $F$ (2, 173) = 1.011, $p$ =0.366; thus, the interaction term was removed. The overall test of the model revealed no differences between group in the production of weaken-own claims, $F$ (2, 174) = 1.521, $p$ = 0.219 (Appendix M, Tables 6.1-6.6). The fixed effect of group was not significant in the overall GLMM model, $F$ (2, 174) = 1.531, $p$ = 0.219. There was a significant difference across time as a fixed effect in the overall model, $F$ (1, 174) = 7.46, $p$ = 0.007. However, no pairwise contrasts were significant.

A Cochran's $Q$ test ($Q$ = 9.00, $df$ = 11) showed no difference in the proportion of students who employed weaken-own claims at least one time, $p$ = 0.622 (Table 22). (Results were comparable for a parametric analysis.)

***Transfer assessment***

In the year-end transfer assessment all students wrote an essay without prior preparation on a novel topic – whether cigarette sales should be banned in the United States. Students had access to the same list of evidence to include in their essays if they wished. There were five outliers (23, 25, 39, 43, 59) in the data, as assessed by inspection of a boxplot for values greater

than 1.5 box-lengths from the edge of the box. Skewness and kurtosis were of concern for the supporting-evidence group essays (Appendix N, Table 1).

The overall evidence use score was normally distributed, as assessed by Shapiro-Wilk's test ($p > 0.05$) for the groups; however, the supporting-evidence group resulted in a Shapiro-Wilk's statistic of 0.698 (17), $p < 0.001$.

There was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = 0.585$). Use of functional evidence-based segments differed by group from the supporting-evidence group ($M = 1.76$, $SD = 1.20$), to the control group ($M = 2.43$, $SD = 1.36$), to the mixed-evidence group ($M = 3.76$, $SD = 1.34$), in that order (Appendix N, Table 1).

The employment by students of functionally used evidence-based statements in their year-end assessment essays was significantly different across the groups, $F$ (2, 56) = 11.692, $p < 0.001$, partial $\eta^2$ value = 0.295, as assessed by an analysis of variance (ANOVA). A Bonferroni's post-hoc analysis revealed a difference between the mixed-evidence ($M = 3.76$, $SD = 1.34$) and the supporting-evidence ($M = 1.76$, $SD = 1.20$) groups, $p < 0.001$ (95% CI [0.94, 3.05]), as well as the mixed-evidence and the control ($M = 2.43$, $SD = 1.36$) groups, $p = 0.005$ (95% CI [0.34, 2.33]) (Appendix N, Table 2). The mixed-evidence group surpassed the other two groups, who did not differ from one another. Only seven students (three from the control group, two from the supporting-evidence group, and two from the mixed-evidence group) ever used evidence to weaken or support the other side in their year-end transfer assessment essays. The type of evidence used was primarily was support-own.

Of all the students 98% (all but one student) used functional evidence-based segments at least one time in their year-end essay. The one student who never employed a functional

evidence-based segment was from the control group. A Cochran's *Q* test could not compute the difference in proportion of students who employed functional evidence at least one time in the year-end transfer assessment essays.

# CHAPTER 4

## DISCUSSION

The research presented here explored the quality of middle school students' individual argumentative writing as they participated in a dialogic argumentation curriculum over an academic year. Activities included both electronic dialogs and individual essays. The specific focus was students' learning to use evidence and in particular to use evidence to weaken opposing claims, a skill previous research has shown to be particularly challenging. A dialogic approach has been found facilitative in this respect (Kuhn, & Moore, 2015; Khait, 2014; Iordanou, & Constantinou, 2015), but students do not do as well in individual writing.

The study involved 58 sixth graders from a New York City public school and compared the effects of three classroom conditions (mixed-evidence, supporting-evidence, and control) on students' individual argumentive writing, specifically with respect to the use of evidence, over time. The control group were not provided any evidence for use in their argumentation. The supporting-evidence group examined evidence that supported their own favored position on a topic. The mixed-evidence group were provided multiple types of evidence that supported their position, weakened their position, supported the opposing position, or weakened the opposing position on a topic. The focus was on the difference between the two experimental conditions, the mixed-evidence versus the supporting-evidence groups, to examine the effect of providing evidence relevant to the function of weakening as well as supporting the opponent's position (versus evidence that only supported own position). It was suggested to students to try to make

use of the evidence in their dialogs. The expectation was that making evidence available, providing the students time to practice using the evidence, would support their learning how to use evidence in their essays. The focus of the present work is on improvements observed in their end-of-topic final essays. In particular, it was predicted that the mixed-evidence condition would support development of the use of evidence to weaken, as well as support, claims.

### *Summary of findings*

An initial possibility would be that students' essays would improve overall simply with practice, reflected in an increase in length, thereby giving students more chances to express more ideas. However, that was not the case. Essays were non-varying across time and topics (and condition) in the mean number of segments (idea units) they contained. However, students' essays did improve in other ways that the present work focuses on.

Participation in the argumentation curriculum led students in all three conditions to increase their use of evidence-based claims in their essays over time. There was an effect for condition and for time. Students in the experimental groups included more evidence-based claims and were more successful in functionally connecting evidence to claims in their essays, compared to the control group. Also there was a difference across groups over time in the number of students who employed evidence-based claims at least one time in their essays.

Overall, then, the type of evidence made available to students did affect their progress in making evidence-based claims in their essays. Thus, the suggestion to use evidence helped students to do so.

Condition and time effects were also examined more specifically with respect to types of evidence. There was an effect for group on the frequency of employment of evidence-based arguments in which the evidence served to support the student's own position. The experimental groups (mixed-evidence versus supporting-evidence) did not differ from one another in this respect but both surpassed the control group.

More important, there was a significant difference between groups over time on the successful use of evidence-based arguments that weakened the opposing position. Performance improved over time, and there was an effect of condition, with students in the experimental groups exceeding the control group, as well as the mixed-evidence group surpassing the supporting-evidence group.

For the successful employment of evidence-based arguments that supported the opposing position, there was an interaction between time and group and an effect of time. The mixed-evidence group exceeded the control group in this regard by the fourth essay. There were no significant effects for arguments that weakened own position, as these types of arguments were rare; however, the mixed-evidence group did successfully utilize this type of evidence-based argument by their final essay. Both of these trends are important in students' coming to acknowledge that there exist both supporting and weakening evidence with respect to both one's own and an opposing position.

Although, the control group performance was inferior to that of the experimental groups, control group students still showed some skill development. Analyses of arguments that were non-evidence based highlighted these improvements.

The results of the year-end assessment essays address how students' argumentative skills transferred to an unstudied, extemporaneously written essay. These essays stand in contrast to students' essay writing on the topics with which they had deep engagement during the argument curriculum itself. Despite the fact that students showed their skill in using all four types of evidence-based arguments when familiar with the topic, the lack of familiarity hindered their ability to show these skills fully when writing on a new topic. The inclusion of functionally used evidence-based claims on this essay showed a group effect, with the mixed-evidence group surpassing the other two groups, who did not differ from one another. However, in contrast to the curriculum essays, students' essays on the transfer topic rarely included evidence that functioned in any way other than to support their own position – only seven students in total ever used evidence to either weaken or support the opposing side.

### *Implications*

These results support the view that it is rich engagement with a topic that supports evolution of students' argumentive thinking and writing abilities. Consistent with previous work presenting encouraging results with regard to a dialogic approach to the development of argument writing skills (Kuhn, Hemberger, & Khait, 2016), the work presented here complements and extends these earlier results by showing that following extended engagement and practice in an argumentive discourse environment, middle school students show development in individual written argument skills – and in particular in their use of evidence to weaken as well as support opposing claims.

These results show that engagement with the argumentation curriculum led all students to increase their use of evidence-based arguments in their essays over time. Number of students (in all three conditions) who employed evidence at least one time in their essays increased over time from topic 1 (52%) to topic 4 (66%). By the end of the intervention the two experimental groups were using evidence at least one time in their essays: 95% of the students in the mixed-evidence group and 100% of the students in the supporting-evidence group did so by the final topic. Thus, students develop and learn how to use evidence in argumentation in a dialogic environment.

A focus of this study was on how to enable students' mastery of what previous work (Kuhn & Moore, 2015; Khait, 2014) has found to be a consistent weakness – the use of evidence to weaken an opposing claim. These results indicate that the method employed in the present work – making evidence to weaken available and giving students opportunities (in their dialogs) to practice using such evidence – enhances argumentive skills, in particular with respect to the successful use of evidence to weaken an opposing position.

Students in the supporting-evidence group, provided with evidence only in support of their own favored side on a topic, did encounter evidence that supported the opposing position during their six sessions of dialogs with opponents who cited such evidence. However, only in the mixed-evidence group was it suggested to students that they might address such evidence themselves. The condition differences indicate that this prompting and practice was critical. Students' argumentive skill with respect to use of evidence benefits from their own experience in making use of a variety of forms of evidence – evidence that supports and that weakens multiple positions.

As seen in the results of the year-end transfer assessment essays there is the possibility that the intervention had a negative, not only positive, effects on the support-evidence group. The supporting-evidence group perhaps ended up with a much more limited understanding of what evidence is than did the mixed-evidence group. This could be due to the supporting-evidence students' not recognizing evidence as something that can have different types of connections to a claim. Hence, the support-evidence group could have achieved less, specifically in the transfer topic task, due to lacking definitive abilities to differentiate claims and evidence.

The slower emergence of evidence-based arguments that supported the opposing position and weakened one's own position, compared to arguments that are evidence-based supporting one's own position or weakening the opposing position, is not surprising. These two types of evidence-based arguments require very different cognitive demands; weakening the opposing position with an evidence-based statement is compatible and works together with the successful employment of evidence to support one's own position. Identifying weaknesses in a favored position and strengths in an opposing position while also incorporating evidence bearing on such claims is cognitively demanding and leaves resolution outstanding. However, by the conclusion of the intervention students in the mixed-evidence group successfully employed evidence-based arguments that weakened one's own position and supported the opposing position in their essays. Connecting and integrating opposing arguments challenges the student author to coordinate evidence-based arguments that achieve resolution in an overall argument.

***Supporting argumentive writing development among students with special educational needs***

Students classified by federal guidelines as a Student with a Disability (SWD) or as an English Language Learner (ELL) struggle in learning how to write (Graham, & Harris, 2003). Within this study 55% of the students (32 of 58) are SWD ($n$ = 16) or ELL ($n$ = 24) (or both SWD and ELL, $n$ = 8) learners. These students were included in all of the activities of the argument curriculum, regardless of their of their classification. However, of the 13 essays (of the 273 included in this study) that were dictated to a teacher by a student, 10 (77%) of those student essays were from a student classified as being an ELL or a SWD learner (Appendix F, Table 1). All of the students had access to the essay dictation option for their essays to ensure all of the students were empowered to complete their argumentive essay, regardless of a student's classification, no student was left behind. By never singling out any student or group of students, a supportive writing community was developed within the classroom, as all of the student writers had agency in executing the specific purpose of writing their essay. The specific separate analyses on the use of evidence in their essays and their argumentative writing development by students that are included within the SWD or ELL classifications are not included in the results of this study (those students are included in the overall results of the study), as all of these results duplicate what was reported for the whole group. All of the ELL and SWD students increased their use of evidence-based claims in their essays over time, regardless of classroom condition group. Also SWD and ELL students in the experimental groups (mixed-evidence or supporting-evidence) surpassed the control group students by the inclusion of more evidence-based claims in their essays over time and were more successful in functionally connecting evidence to claims

in their essays over time. Thus, regardless of a student's federal classification, dialogic argumentation facilities these students' use of evidence in argumentive writing development.

***Case study illustrations***

To illustrate the effect of the intervention on a student's argumentive writing development, in Tables 23 – 26 appear student A's final essays on each of the four topics. In Table 27 is student A's transfer topic essay. Student A is an English Language Learner (ELL) student and was assigned to the mixed-evidence condition.

Table 23. *Final topic 1 essay by student A.*

| *Segments* | | *Type of segment* |
|---|---|---|
| 1 | Nick should go to townschool. | No argument |
| 2 | Nick has more opportunities to get a good job | Support-own |
| 3 | and he could join a soccer team. | Support-own |
| 4 | Also, he can make a lot of new friends. | Support-own |
| 5 | His parents are not certified teachers or to have specific qualifications to teach particular subjects. | Weaken-other evidence (Shared evidence #7) |
| 6 | He cannot be always in homeschool when he goes to college | Weaken-other |
| 7 | he need to get in a school he is going to be shy because he never being to college and everybody is going to talk him in English and he won't understand. | Weaken-other |

Note. This essay was written in favor of the Town school side of the Homeschool topic 1.

In typical fashion of a student just beginning to develop his argumentation skills, student A begins his first final topic essay with a claim that includes no argument (Table 23). The student then includes three claims that support his own position on the topic (Town school is preferred over the option of homeschool) and then includes three claims that weaken the

opposing side of the topic. There is a lack of integration of his assertions and only one argument (segment 5) that includes evidence.

Table 24. *Final topic 2 essay by student A.*

| *Segments* | | *Type of segment* |
|---|---|---|
| 1 | Dear editor, I believe the U.S. should get involved because they are a poor country. | Support-own |
| 2 | In world war two, the Nazis in Germany killed 6 million Jews and other groups of people. The United States' intervention in the war is a major reason the war ended and the killing stopped. | Non-functional citation of evidence (Shared evidence #1) |
| 3 | During the 1990s, the U.S. did not get involve in a civil war in Africa country of Rwanda and the Hutus kill an estimated 500,000-1,000,000 Tutsis. | Non-functional citation of evidence (Shared evidence #14) |
| 4 | After world war II, the united state the help the European and many people think this stop futur violence. | Non-functional citation of evidence (Shared evidence #5) |
| 5 | The other side is wrong because if we don't help they migh go in war with U.S. | Weaken-other |
| 6 | and that will be bad and then we will had to waist more money than we usally do and that will be bad for us | Weaken-other |
| 7 | but if we help them they migh have gun that we can borrow. | Support-own |

Note. This essay was written in favor of the Yes side of the U.S. intervention topic 2.

Notice that student A begins and concludes his second essay with an argument in favor of his own side (Yes the United States should get involved in an intervention) (Table 24). The student also makes three attempts (segments 2, 3, 4) at incorporating evidence into his essay but, the evidence is cited but is not connected to any claim. Thus it serves as non-functional citation of evidence (the author attempted to use evidence but did not do so successfully). The student then includes two statements to weaken the opposing side. The essay is still limited to a one-sided essay. There is a lack of integration of arguments and no acknowledgement of the strengths

of the opposing side's position nor any statements that weaken his own position. The student is attempting to employ evidence into his essay but he remains unsure how to do so.

Table 25. *Final topic 3 essay by student A.*

| *Segments* | | *Type of segment* |
|---|---|---|
| 1 | Dear editor I believe that the teens should be tried in the adult court system because juvenile courts don't allow trial by jury a judge hears evidence and rules. | Support-own evidence (Shared evidence #7) |
| 2 | The other side is wrong because the teens will just been in juvenile For like a week and then just get out and commit more crimes and won't stop because they kow is not a punishment. | Weaken-other |
| 3 | If they go to the adult court system they might be there like a year or even more | Support-own |
| 4 | but in the juvenile it would only be like a week. | Weaken-other |
| 5 | The juvenile were involved in one-quarter of violent crimes over the last 25 years and they havent punish them for there crimes. | Support-own evidence (Shared evidence #8) |

Note. This essay was written in favor of the Adult side of the Juvenile court topic 3.

Again, student A begins and concludes his essay with arguments in support of his own position (in favor of the Adult court side for juveniles who commit a serious crime) in his final topic three essay (Table 25). Has this student now developed a strategy for how to open and close his essays? Noticeably these two statements (segments 1& 5) serving to functionally support one's own position successfully include the incorporation of evidence. This is a development from student A's topic two essay (Table 24) in which he attempted to include evidence in his essay but did so unsuccessfully as the evidence statements were non-functional. Also of note in this essay is the student's inclusion of statements (segments 2 & 4) serving to functionally critique and thereby weakens the opponent's position, preceded and followed by statements that support his own position. The student is evolving in his skill as his topic three

essay integrates the arguments for his own side and against the opposing side by alternating in his presentation of them.

Table 26. *Final topic 4 essay by student A.*

| *Segment* | | *Type of segment* |
|---|---|---|
| 1 | Dear editor, Human organ like kidneys can be donated for free instead of selling because kidney are to expensive and some people cant afford. | Support-own |
| 2 | Kidney can cost anywhere from 40,000 to 60,000. This is more money than the average American earn in on year. | Non-functional citation of evidence (Shared evidence #7) |
| 3 | In 2005, 3000 people in the USA die while waiting for a donates kidney. This means that more and more people will die if they keep on waiting so more and more people should donated their kidney. | Weaken-own evidence (Shared evidence #1) |
| 4 | Also selling kidneys in the USA is illegal. You should not travel to another country just to get something you need to live, the other side is wrong because selling a kidney is illegal in the USA | Weaken-other evidence (Shared evidence #5) |
| 5 | and it cost to much money. | Repeat |
| 6 | For a person the only option is to wait for a donor hope that there will be one soon. This means that if people keep on waiting then they will die and some of the People that are waiting are little kids. | Weaken-own evidence (Shared evidence #12) |
| 7 | Do you want little kids to die people should donated instead of selling it. | Support-own |
| 8 | This is why I believe that people should donated instead of selling their own kidneys. | No argument |

Note. This essay was written in favor of the donate side of the kidney topic 4.

In his topic four essay (in favor of kidneys to be donated for free to another person but not sold to them for money) student A again begins and concludes (segments 1 & 7, as segment 8 serves no argumentative function) his essay with the same pattern as previously, making arguments in support of his own favored position. However, in this topic four essay student A integrates in alternating presentation evidence arguments that functionally acknowledge weaknesses of one's own position (segments 3 & 6) with an evidence-based statement serving to functionally weaken the opponent's position (segment 4). These statements occurring adjacently,

one immediately after the other, indicates that student A saw it appropriate to note weaknesses in his own favored position but he then had to incorporate a statement to weaken the other side to attempt to rectify the imbalance. It is unclear if student A is aware of a connection between these points as he was most likely focusing on his successful incorporation of evidence into these arguments.

Table 27. *Transfer topic essay by student A.*

| *Segment* | | *Type of segment* |
|---|---|---|
| 1 | Dear Editor, I believe that cigarette should be banned each year an estimated 443,000 people die prematurely from smoking or exposure to secondhand smoke, and another 8.6 million live with a serious illness caused by smoking. | Support-own evidence (Evidence #2) |
| 2 | They should also be banned because they give you cancer and I think that is the biggest disease in our world. | Support-own evidence (Personal evidence) |
| 3 | Smoking has kill a lot of people like George Harrison, a musician for the Beatles, was a smoker and die of lung cancer at the age of 58. | Support-own evidence (Evidence #4) |
| 4 | As much as 96 billion a year is estimated lost in medical cost and lost worker productivity due to tobacco. | Support-own evidence (Evidence #6) |
| 5 | An estimated 17 million Americans try to quit smoking each year, and about 8% of the succeed. If more American can try to quit smoking that 8% is going to increase. | Support-own evidence (Evidence #7) |
| 6 | The nicotine in cigarettes causes fast acting chemical reactions in your brain that have been show to relieve anxiety and nervousness. If teen smoke the teacher will notice that he is acting strange and they might get expel. | Support-own evidence (Evidence #1) |
| 7 | This is why I believe that cigarettes should be banned. I hope that you will accept this and banned them for good. | No argument |

Note. This essay was written in favor of banning cigarette sales of the transfer topic.

Standing in stark contrast to the previous four final topic essays is student A's transfer topic essay in favor of banning cigarette sales (Table 27). In this essay student A only makes evidence-based statements in favor of his preferred position on the topic and never mentions the

opposing side. It is evident that student A's argumentive essays greatly benefitted from the rich and prolonged engagement on a topic during the argument curriculum, as then student A showed himself able to authentically exhibit his argumentive skills in his essays, which he was unable to do in his transfer topic essay. Notably, in segment 6, instead of acknowledging the provided evidence as support for the opposing position, he extrapolates and distorts it so as to serve a support-own function.

Student A and his peers received no specific lessons or instructions on how to write an argumentive essay and they are not experienced writers. However, as seen in student A's progression that argumentive structure did develop and emerge over the course of the year-long argument curriculum. The dialogic nature of the curriculum did impact and transfer to students' essays. In particular, student A also developed the ability to successfully integrate evidence into his arguments. The mere suggestion that students' (in the experimental groups) try to use a unique piece of evidence in their dialog sessions transferred to the students' final topic essays. Drawing on evidence is an essential tool and learning how to use it is facilitated by a dialogic setting. The continued practice of dialogs with opposing-side peers provides the missing interlocutor in their essays, enabling them to represent the opposing position, recognize the importance of doing so and successfully incorporate evidence as part of the process.

### *Limitations and future research*

Could one topic have been more difficult to comprehend or relate to for the students? To address this possibility, this study should be replicated with another sample using different

topics. However, data on position changes do not suggest such differences among the topics included in this study. Students have personal experiences with these topics that could be having an effect on their dialogs and final essay performance. Of the 214 final topic essays included in this study, in 24 (11%) of those essays the student author changed the side that they favored on the topic from the position that they favored during the activities in the curriculum (Appendix F: Table 2). The number of students that switched their favored position on a topic varied from topic 1 ($n$ = 5) to topic 2 ($n$ = 8) to topic 3 ($n$ = 3) to topic 4 ($n$ = 8) and varied by classroom condition from the mixed-evidence group ($n$ = 3) to the supporting-evidence group ($n$ = 8) to the control group ($n$ = 13).

The coding of the topic essays could not be fully blind due to the four different topics used throughout the year and the different topic evidence that was presented. Thus, the coders had to be presented with all of the topic evidence relevant to each condition. Although, this concern is minimized, as the coder blind to condition was blind to which group condition was which classroom as the coder was never present and was never involved with the implementation of the argumentation curriculum at the school.

The students that participated in this study were all students from the same school and students were assigned to condition by their class. The classrooms were formed by the school administration to be three equivalent sixth grade classrooms at the beginning of the school year. However, with the transient nature of the student population classrooms characteristics change during the school year. Thus, there is a concern regarding the generalization of the results of this study. Rather than the entire classroom assigned to condition, ideally the random assignment should have occurred at the student level.

### *Implications for practice*

The argumentation curriculum was implemented as a stand-alone class. The three classes met for twice-weekly 45-minute class, referred to as debate class by the school's staff. Alternatively the argumentation curriculum could be embedded within a unit of study that is being taught within the normal general education course of study. The integration of the argument curriculum lessons and activities into a general education teacher's unit of study has the potential to enhance the teacher's unit as the students will have a deeper and richer engagement with the topic of study, as well as strengthening students' argumentive writing and particularly incorporation of evidence into their writing. An extension of this study would need to be conducted on students' argumentive skill after engaging in the argument curriculum incorporated into a general education teacher's unit of study to address the question of which is more effective in skill development – embedded or stand-alone?

It is evident from this study that students' use of evidence in argumentive writing is enhanced through deep engagement in a dialogic curriculum but could the incorporation of a direct instruction lesson in the argument curriculum enhance these gains? Could a class session lesson or even a mini-lesson be developed and presented to students on why evidence is a crucial aspect to a well written argumentive essay and how to most effectively incorporate evidence into an argumentive essay, prove beneficial for students? The students included in this study never received individual feedback on their essays. Could the inclusion of teacher-student writing conferences to review the student essays enhance the students' writing, as well as their use of evidence in their argumentive writing? If the students were afforded the opportunity to rewrite

their final topic essays after receiving individual feedback (verbally or written) how might the final essays change? The argument curriculum could also potentially be enhanced by the inclusion of a class session devoted to peer-reviewed evaluation of the topic essays in which students highlight not just that evidence was incorporated into the essay but that the evidence was employed to functionally support an argument – to support or weaken their own or the opposing side. Thus, empowering students as reviewers of a peer's essay, in turn enhancing their own development of incorporating evidence to functionally support arguments in their essays, in addition to teacher feedback, are potential enhancements to the dialogically based curriculum implemented in the present work.

As previous studies (Kuhn & Crowell, 2011; Crowell & Kuhn, 2014) have shown engagement in a dense and extended practice with a dialogic argumentation curriculum over two or more school years improves the quality of middle school students' individual argumentive writing abilities. However, in this study students' progress in argumentive skills and understanding with respect to the use of evidence in argumentation was only examined over the course of one school year. This study does not demonstrate how to maximize the argumentation progress of the students' skills. Thus, further research is needed to establish an ideal method for argumentive instruction with middle school students.

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APPENDIX A

Table 1. *Ethnicity of students.*

| | *Male* | *Female* | *Total* |
|---|---|---|---|
| Hispanic | 39 | 19 | 58 (82%) |
| African-American | 4 | 6 | 10 (14%) |
| Caucasian | 3 | 0 | 3 (4%) |
| Total | 46 | 25 | 71 |

Table 2. *Primary language spoken at students' homes.*

| *Language* | *Number of Students* |
|---|---|
| Albanian | 1 (1%) |
| Arabic | 1 (1%) |
| French | 1 (1%) |
| Haitian Creole | 2 (3%) |
| English | 21 (30%) |
| Spanish | 45 (64%) |
| Total | 71 |

Table 3. *Lunch payment type based on socioeconomic status of students' families.*

| *Lunch payment type:* | *Number of Students* |
|---|---|
| Free Lunch (Due to food stamps &/or home income status) | 58 (82%) |
| Reduced Lunch (Due to home income status) | 7 (10%) |
| Full price Lunch | 6 (8%) |
| Total | 71 |

APPENDIX B

Table 1. *Argument curriculum class session schedule– topic 1.*

| *Topic 1 Sessions* | *Class Session* |
|---|---|
| I | Pre-assessments |
| II | Pre-assessments (cont.), Topic Straw Polls, Introduction Lesson |
| 1 | Pre-topic 1 essay & pre-game session 1 |
| 2 | Pre-game session 2 |
| 3 | Dialog session 1 |
| 4 | Dialog session 2 |
| 5 | Dialog session 3 |
| 6 | Dialog session 4 |
| 7 | Dialog session 5 |
| 8 | Dialog session 6 |
| 9 | End-game session 1 |
| 10 | End-game session 2 & Interim topic 1 essay |
| 11 | Showdown |
| 12 | Essay pre-write & Final topic 1 essay |
| 13 | Showdown debrief |

Table 2. *The topic 1 count of students' straw poll and certainty side preference*.

| *Side preference* | *Certainty* | *Group* | | | *Total* |
|---|---|---|---|---|---|
| | | Mixed-evidence | Supporting-evidence | Control | |
| Homeschool | Certain | 1 | 0 | 1 | 2 |
| | Very Sure | 0 | 1 | 2 | 3 |
| | Sure | 2 | 1 | 2 | 5 |
| | So-so | 1 | 0 | 1 | 2 |
| | Not very sure | 1 | 0 | 1 | 2 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Town school | Certain | 2 | 2 | 5 | 9 |
| | Very Sure | 2 | 3 | 6 | 11 |
| | Sure | 6 | 4 | 1 | 11 |
| | So-so | 4 | 5 | 1 | 10 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Undecided | Certain | 0 | 1 | 0 | 1 |
| | Very Sure | 0 | 0 | 0 | 0 |
| | Sure | 0 | 0 | 0 | 0 |
| | So-so | 0 | 2 | 0 | 2 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |

Table 3. *The topic 1 count of students on each side of the topic.*

| *Group* | *Homeschool Side* | *Town School Side* | *Total* |
|---|---|---|---|
| Mixed-evidence group | 11 | 8 | 19 |
| Supporting-evidence group | 10 | 9 | 19 |
| Control group | 8 | 12 | 20 |

Table 4. *Evidence checkout desk folder: list of questions material for dialog session 6 of topic 1 for the Homeschool side in the classroom of mixed-evidence group.*

**EVIDENCE FOR THE HOMESCHOOL SIDE**

*Question # 1:* Who sets the curriculum for a homeschool child?

*Question # 2:* How many students are in a typical classroom?

*Question # 3:* Who sets the curriculum for a public school child?

*Question # 4:* Are homeschooling parents qualified to teacher their children?

*Question # 5:* What can a homeschooled student do for sports and activities?

Table 5. *Evidence checkout desk folder: evidence checkout log material for dialog session 6 of topic 1 for the Homeschool side in the classroom of mixed-evidence group.*

**HOMESCHOOL EVIDENCE CHECKOUT LOG**

**DATE:** ___10/14/14 – DIALOG SESSION # 6_____ **CLASS OF:** ___MIXED-EVIDENCE GROUP_____

| Student Name | Evidence Question # | Check-Out Time | Check-In Time |
|---|---|---|---|
| | | | |
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Table 6. *Final topic 1 essay by student A in the mixed-evidence group.*

| |
|---|
| Nick should go to townschool. Nick has more opportunities to get a good job and he could join a soccer team. Also, he can make a lot of new friends. His parents are not certified teachers or to have specific qualifications to teach particular subjects. He cannot be always in homeschool when he goes to college he need to get in a school he is going to be shy because he never being to college and everybody is going to talk him in English and he won't understand. |

Note. This essay was written in favor of the Town school side of the Homeschool topic 1.

Table 7. *Final topic 1 essay by student B in the supporting-evidence group.*

| |
|---|
| Dear editor,<br>I think Nick should go to town school becaue Nick can make new friends and Nick can do group projects to help students develop many skills that are increasingly important in the work world. In town school he can learn new languages like, Spanish, frence, Albany. In town school he can play sports like basket ball, baseball, football, soccer, tennis, volleyball. In town school the teachers spend all the time traning to be a teacher so Nick can't go to town school. |

Note. This essay was written in favor of the Town school side of the Homeschool topic 1.

Table 8. *Final topic 1 essay by student C in the control group.*

| |
|---|
| Nick should go to townschool. I think Nick should go to townschool because he can learn more language not just Greek and to be can make new people because if he is in homeschool his parent don't know the English curriculum. Also because then he is not going to meet new people or he is not going to have recess. If he is in homeschool he is not going to learn another language because his parent talk greek. If he is in townschool he can learn the U.S.A. curriculum. |

Note. This essay was written in favor of the Town school side of the Homeschool topic 1.

APPENDIX C

Table 1. *Argument curriculum class session schedule– topic 2.*

| *Topic 2 Sessions* | *Class Session* |
|---|---|
| 1 | Pre-topic 2 essay & pre-game session 1 |
| 2 | Pre-game session 2 |
| 3 | Dialog session 1 |
| 4 | Dialog session 2 |
| 5 | Dialog session 3 |
| 6 | Dialog session 4 |
| 7 | Dialog session 5 |
| 8 | Dialog session 6 |
| 9 | End-game session 1 |
| 10 | End-game session 2 & Interim topic 2 essay |
| 11 | Showdown |
| 12 | Essay pre-write & Final topic 2 essay |
| 13 | Showdown debrief |

Table 2. T*opic 2 scenario.*

A poor Asian country is being invaded by a neighboring country. The United States is considering whether to send soldiers to help. The US is not sure it has enough soldiers available to send and is concerned about the cost in dollars and lives. Throughout its history, the US has had to decide whether to involve itself in another country's problems. Some think the US should act in these situations. Others think we should use our resources on our own serious problems at home. **Question: Should the US get involved or not get involved?**

*Please vote by circling one option:*

Yes, the U.S. should get involved  No, the U.S. should not get involved  Undecided

*How sure are you of your opinion? (Circle one)*

Certain  Very Sure  Sure  So-so  Not very sure  Not sure at all

Table 3. *The topic 2 count of students' straw poll and certainty side preference.*

| *Side preference* | *Certainty* | *Group* | | | *Total* |
|---|---|---|---|---|---|
| | | Mixed-evidence | Supporting-evidence | Control | |
| Yes | Certain | 1 | 7 | 1 | 9 |
| | Very Sure | 7 | 1 | 5 | 13 |
| | Sure | 1 | 1 | 1 | 3 |
| | So-so | 1 | 3 | 4 | 8 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| No | Certain | 2 | 1 | 2 | 5 |
| | Very Sure | 2 | 2 | 2 | 6 |
| | Sure | 0 | 3 | 2 | 5 |
| | So-so | 1 | 0 | 0 | 1 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Undecided | Certain | 0 | 0 | 0 | 0 |
| | Very Sure | 1 | 0 | 0 | 1 |
| | Sure | 1 | 0 | 0 | 1 |
| | So-so | 2 | 1 | 3 | 6 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |

Table 4. *The topic 2 count of students on each side of the topic.*

| *Condition* | *Yes Side* | *No Side* | *Total* |
|---|---|---|---|
| Mixed-evidence group | 9 | 10 | 19 |
| Supporting-evidence group | 9 | 10 | 19 |
| Control group | 8 | 12 | 20 |

Table 5. *Topic 2 shared evidence questions and answers*.

| | Evidence: | | | | |
|---|---|---|---|---|---|
| | Stance | Presentation to: | Presented during dialog session: | Evidence question: | Evidence answer: |
| 1 | Y + | Mixed-evidence – both sides | Yes side 1 | What was the role of the U.S. in WWII? | In World War II, the Nazis in Germany killed 6 million Jews and other groups of people. The U.S.'s intervention in the war is a major reason the war ended & the killing stopped. |
| | | | No side 3 | | |
| | | Supporting-ev. – Yes side | 1 | | |
| 2 | Y + | Supporting-evidence – Yes side | 2 | How does the U.S. aid Colombia? | U.S. trains troops in countries like Colombia to cut down drug production & violence from drug cartels. |
| 3 | Y + | Supporting-evidence – Yes side | 3 | How much money does the U.S. give to Israel every year? | The U.S. gives about $3 billion in military aid to Israel every year; many people claim this has helped to stabilize the region around Israel. |
| 4 | Y + | Supporting-evidence – Yes side | 4 | What is the U.S. role in Afghanistan today? | As the U.S. prepares to remove troops from Afghanistan, it is helping to train Afghan security forces, to better the Afghan government, & to support the growth of businesses. |
| 5 | Y + | Mixed-evidence – both sides | Yes side 5 | How has the U.S. prevented violence in other countries? | After World War II, the U.S. spent about $160 billion (in 2014 dollars) helping European countries rebuild; many people believe this helped to prevent future violence. |
| | | | No side 6 | | |
| | | Supporting-evidence – Yes side | 5 | | |
| 6 | Y + | Supporting-evidence – Yes side | 6 | How did the U.S. respond when Iraq invaded Kuwait in 1990-1991? | After Iraq invaded Kuwait with 650,000 soldiers in 1990, the U.S. sent 700,000 troops to help Kuwait (and other countries sent an additional 200,000 troops). Before the U.S. intervened, the war had been going on for about 6 months. The war ended 5 weeks after the U.S. intervened. |
| 7 | Y – | Mixed-evidence – both sides | Yes side 4 | How much money does it cost for a U.S. solider to be serving in Afghanistan? | It costs the U.S. somewhere between $850,000 and 2.1 million per year for each American soldier serving in Afghanistan. |
| | | | No side 2 | | |
| 8 | N + | Mixed-evidence – both sides | Yes side 3 | What happened in 2011 in Egypt? | In 2011, the U.S. decided not to intervene in Egypt, where Egyptian people wanted to overthrow dictator president Hosni Mubarak. The people eventually overthrew Mubarak and elected a new president without any outside help. |
| | | | No side 1 | | |
| | | Supporting-evidence – No side | 1 | | |
| 9 | N + | Supporting-evidence – No side | 2 | What happened in 1982 in the Falkland Islands? | Britain and Argentina both claimed the islands so in 1982 Argentina invaded the islands leading to the Falkland War. The war resulted in the Falklands being under British rule. It was all resolved without any help from the U.S. |
| 10 | N + | Supporting-evidence – No side | 3 | How much will Obama Care cost the U.S. government? | It is estimated that Obama Care, which helps to provide healthcare coverage for uninsured U.S. citizens, will cost the U.S. government about $2 trillion over the next decade. |
| 11 | N + | Supporting-evidence – No side | 4 | What did the U.S. do when China killed about 1 million of its own people under Communist rule during the 1960s and 1970s? | For political reasons, the U.S. decided not to intervene. Several years after these people were killed, though, a new, less violent leader came to power in China, helping China to become one of the fastest growing economies in the world. |
| 12 | N + | Mixed-evidence – both sides | Yes side 6 | What is the U.S. debt total? | The U.S. is $16.2 trillion in debt—that is about $54,000 for every person (including children) in the U.S. |
| | | | No side 5 | | |
| | | Supporting-evidence – No side | 5 | | |
| 13 | N + | Supporting-evidence – No side | 6 | On average how much does the U.S. government spend on education & on the military? | The U.S. needs about the same amount to fund its military as it costs to educate all the children in the U.S. |
| 14 | N – | Mixed-evidence – both sides | Yes side 2 | What happened during the 1990s in Rwanda? | During the 1990s, the U.S. not to get involved in a civil war in the African country of Rwanda where the Hutus killed an estimated 500,000 – 1,000,000 Tutsis. |
| | | | No side 4 | | |

Table 6. *Final topic 2 essay by student A in the mixed-evidence group.*

| |
|---|
| Dear editor, I believe the U.S. should get involved because they are a poor country. In world war two, the Nazis in Germany killed 6 million Jews and other groups of people. The United States' intervention in the war is a major reason the war ended and the killing stopped. During the 1990s, the U.S. did not get involve in a civil war in Africa country of Rwanda and the Hutus kill an estimated 500,000-1,000,000 Tutsis. After world war II, the united state the help the European and many people think this stop futur violence. The other side is wrong because if we don't help they migh go in war with U.S. and that will be bad and then we will had to waist more money than we usally do and that will be bad for us but if we help them they migh have gun that we can borrow. |

Note. This essay was written in favor of the Yes side of the U.S. intervention topic 2.

Table 7. *Final topic 2 essay by student B in the supporting-evidence group.*

| |
|---|
| Dear: Editor I believe the US should get involved because Afther Iraq invaded Kuwait with 650,000 soldiers in 1990, the United States sent 700,000 troops to help Kuwait (and other countries sent an additional 200,000 troops). Before the United States intervened, the war had been going on for about 6 months. The war ended 5 weeks after the US intervened. However, this poor country needs are help to sent money and soldiers, so the poor country would not be invaded my does people who want to distroyed the asian country. If they help probably the war will end. Also they can send half of the soldiers to help and the other half they can help other countrys that are being invaded like the asian country. |

Note. This essay was written in favor of the Yes side of the U.S. intervention topic 2.

Table 8. *Final topic 2 essay by student C in the control group.*

| |
|---|
| Dear Editor,<br>I believe the US should get involved because the Asian country are from the united state and that mean we have to help them and because we are united. I know that if we need help they will help us and that like bring peace to the world and if there is not enough solder we can go by are self and help them are self. For example, the other side say "because they can find a sickness" but they are wrong because if you don't come pepare you will get a sickness but that not the point. The point is that they need help and we can help them by sending people to help them and to be pepare to have every ready. Another thing is one day if something happen they are going to help us. What the other side say was "that there not enough solder". What I say is we can go are self. I also know that they will thank us. |

Note. This essay was written in favor of the Yes side of the U.S. intervention topic 2.

APPENDIX D

Table 1. *Argument curriculum class session schedule – topic 3.*

| *Topic 3 Sessions* | *Class Session* |
|---|---|
| 1 | Pre-topic 3 essay & pre-game session 1 |
| 2 | Pre-game session 2 |
| 3 | Dialog session 1 |
| 4 | Dialog session 2 |
| 5 | Dialog session 3 |
| 6 | Dialog session 4 |
| 7 | Dialog session 5 |
| 8 | Dialog session 6 |
| 9 | End-game session 1 |
| 10 | End-game session 2 & Interim topic 3 essay |
| 11 | Showdown |
| 12 | Essay pre-write & Final topic 3 essay |
| 13 | Showdown debrief |

Table 2. *Topic 3 scenario.*

| |
|---|
| Teens who commit serious crimes maybe tried and sentenced in the adult court system. Or they maybe tried in a court system for juveniles. ***Question: Which is better?*** |
| *Please vote by circling one option:* |
| Juvenile Court System  Adult Court System  Undecided |
| *How sure are you of your opinion? (Circle one)* |
| Certain  Very Sure  Sure  So-so  Not very sure  Not sure at all |

Table 3. *The topic 3 count of students' straw poll and certainty side preference.*

| *Side preference* | *Certainty* | *Group* | | | *Total* |
|---|---|---|---|---|---|
| | | Mixed-evidence | Supporting-evidence | Control | |
| Juvenile court | Certain | 3 | 1 | 0 | 4 |
| | Very Sure | 1 | 2 | 4 | 7 |
| | Sure | 1 | 0 | 3 | 4 |
| | So-so | 2 | 2 | 0 | 4 |
| | Not very sure | 0 | 0 | 1 | 1 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Adult court | Certain | 1 | 7 | 2 | 10 |
| | Very Sure | 9 | 1 | 2 | 12 |
| | Sure | 1 | 1 | 3 | 5 |
| | So-so | 0 | 3 | 1 | 4 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Undecided | Certain | 0 | 0 | 3 | 3 |
| | Very Sure | 0 | 1 | 0 | 1 |
| | Sure | 1 | 1 | 1 | 3 |
| | So-so | 0 | 0 | 0 | 0 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |

Table 4. *The topic 3 count of students on each side of the topic.*

| *Group* | *Juvenile Side* | *Adult Side* | *Total* |
|---|---|---|---|
| Mixed-evidence group | 8 | 11 | 19 |
| Supporting-evidence group | 8 | 11 | 19 |
| Control group | 10 | 10 | 20 |

Table 5. *Topic 3 shared & student-generated evidence questions and answers*.

| | | Evidence: | | | | |
|---|---|---|---|---|---|---|
| | Type | Stance | Presentation to: | Dialog: | Evidence question: | Evidence answer: |
| 1 | Shared evidence | J + | Mixed-ev. – both sides | Juvenile 1<br>Adult 3 | At what age is the brain fully developed? | The prefrontal cortex, which is responsible for abstract thinking & the ability to exercise good judgment, is not fully developed until about the age of 25. |
| | | | Supporting- ev. – Juvenile side | 1 | | |
| 2 | | J + | Supporting- ev. – Juvenile side | 2 | Can teens continue their education while at a Juvenile Detention Center? | Juvenile centers provide some schooling, but it may not be a full day or every day. But teens are likely to get better general education at a juvenile center than an adult prison. |
| 3 | | J + | Supporting- ev. – Juvenile side | 3 | Are the sentences given for crimes less harsh in juvenile than adult court? | Compared to adult court sentences, juvenile court sentences tend to be less harsh, with probation and parole more likely. |
| 4 | | J + | Supporting- ev. – Juvenile side | 4 | Are teens in a juvenile detention center moved to adult jail when they are 18? | No, juveniles in a juvenile detention center must be released at age 18. |
| 5 | | J + | Mixed- ev. – both sides | Juvenile 5<br>Adult 6 | Do teens that go to jail get jail records? | They do not if sentences are served in a juvenile detention center; their records are sealed on release. |
| | | | Supporting- ev. – Juvenile side | 5 | | |
| 6 | | J + | Supporting- ev. – Juvenile side | 6 | Do prisoners have counselors to talk to? | They may. This is more common in juvenile than adult prison. |
| 7 | | J – | Mixed- ev. – both sides | Juvenile 4<br>Adult 2 | Do all courts give the right to a trial by jury? | No. Juvenile courts don't allow trial by jury. A judge hears evidence and rules. |
| 8 | | A + | Mixed- ev. – both sides | Juvenile 3<br>Adult 1 | What proportion of violent crimes are committed by juveniles? | Juveniles were involved in one-quarter of violent crimes over the last 25 years. |
| | | | Supporting-ev. – Adult side | 1 | | |
| 9 | | A + | Supporting-ev. – Adult side | 2 | Do adult courts save taxpayer money? | Yes, adult courts cost less to operate than juvenile courts. |
| 10 | | A + | Supporting-ev. – Adult side | 3 | Do adult jails provide job training? | Yes, most adult jails teach job skills to help prisoners earn a living when they are released. |
| 11 | | A + | Supporting-ev. – Adult side | 4 | How many murders are committed by teens? | In 2008, 9% of murders in the US were committed by juveniles. |
| 12 | | A + | Mixed- ev. – both sides | Juvenile 6<br>Adult 5 | Are teens likely to repeat their crimes? | For teens convicted of a felony, the rate of recidivism (repeat crime) is 90% over 10 years. For crimes overall, it is about 50%. |
| | | | Supporting-ev. – Adult side | 5 | | |
| 13 | | A + | Supporting-ev. – Adult side | 6 | What are public opinions on the juvenile court issue? | A "get tough" policy has become more popular in recent decades, with almost every state passing laws in the 1990s making it easier to try juveniles in adult courts. |
| 14 | | A – | Mixed- ev. – both sides | Juvenile 2<br>Adult 4 | Are teens at risk of being assaulted in adult prisons? | Yes. Teens in adult jails are 50% more likely to be attacked by another inmate and twice as likely by prison staff, compared to adult prisoners. |
| 15 | Student-generated evidence | SG | Mixed- ev.–both sides | | What happens to juveniles when they are tried in adult court? | The juvenile would get the same treatment as an adult who committed the same crime when they are tried in adult court. |
| 16 | | SG | Mixed- ev.– both sides | | What if they had a bad past before and it wasn't their fault? | The juvenile court is more likely than the adult court to consider a young person's earlier years when making a decision on judgment. |
| 17 | | SG | Mixed- ev.–both sides | | What's the percentage of teens committing serious felonies? | Juveniles were involved in one-quarter (25%) of violent crimes over the last 25 years. |
| 18 | | SG | Supporting-ev.–both sides | | In juvenile center are the juveniles getting in trouble with the juvenile center guards? | Yes, juveniles in juvenile centers do get in trouble with juvenile center guards. The exact statistics about how many times a year juveniles get in trouble with juvenile center guards are not released to the public. |
| 19 | | SG | Control–both sides | | What is the percentage of kids of who go to college after leaving prison? | The Bureau of Justice Statistics reports that 11% of State prison adult inmates participated in college-level courses (inside or outside of prison). This is much less when compared to the 48% of adults not in prison (nor have ever been in prison) that participated in college level courses in their lifetime. |
| 20 | | SG | Control–both sides | | Are juvenile centers are more affective then adult prisons for teens who commit serious crimes? | For teens convicted of a felony, the rate of recidivism (repeat crime) is 90% over 10 years. For crimes overall, it is about 50%. |
| 21 | | SG | Control–both sides | | Do teens who go to juvenile jail less likely to commit a crime later on? | For teens convicted of a felony, the rate of recidivism (repeat crime) is 90% over 10 years. For crimes overall, it is about 50%. |
| 22 | | SG | Control–both sides | | How is juvenile court gonna deal with these teens if they steal cars? | Compared to adult court sentences, juvenile court sentences tend to be less harsh, with probation and parole more likely. |

Table 6. *Final topic 3 essay by student A in the mixed-evidence group.*

| |
|---|
| Dear editor I believe that the teens should be tried in the adult court system because juvenile courts don't allow trial by jury a judge hears evidence and rules. The other side is wrong because the teens will just been in juvenile For like a week and then just get out and commit more crimes and won't stop because they kow is not a punishment. If they go to the adult court system they might be there like a year or even more but in the juvenile it would only be like a week. The juvenile were involved in one-quarter of violent crimes over the last 25 years and they havent punish them for there crimes. |

Note. This essay was written in favor of the Adult side of the Juvenile court topic 3.

Table 7. *Final topic 3 essay by student B in the supporting-evidence group.*

| |
|---|
| I believe a teen who commits a serious crime should go to adult court because in adult court it cost less money. Most adult jails teach jobs skills to help prisoners earn a living when they are released. |

Note. This essay was written in favor of the Adult side of the Juvenile court topic 3.

Table 8. *Final topic 3 essay by student C in the control group.*

| |
|---|
| Dear Editor, I believe a juvenile should be tried in an juvenile court because teen commit mistake and maybe the where told to do it. But in the other hand, some people say the teen before they where going to commit a serious crime they where thinking like an adult instead of thinking like an teen but I disagree with them because they maybe don't know what they want to do in there life. They should get juvenile punishe instead of adult punished. |

Note. This essay was written in favor of the Juvenile side of the Juvenile court topic 3.

APPENDIX E

Table 1. *Argument curriculum class session schedule – topic 4.*

| *Topic 4 Sessions* | *Class Session* |
|---|---|
| 1 | Pre-topic 4 essay & pre-game session 1 |
| 2 | Pre-game session 2 |
| 3 | Dialog session 1 |
| 4 | Dialog session 2 |
| 5 | Dialog session 3 |
| 6 | Dialog session 4 |
| 7 | Dialog session 5 |
| 8 | Dialog session 6 |
| 9 | End-game session 1 |
| 10 | End-game session 2 & Interim topic 4 essay |
| 11 | Showdown |
| 12 | Essay pre-write & Final topic 4 essay |
| 13 | Showdown debrief |

Table 2. *Topic 4 scenario.*

Humans have two kidneys. They need at least one working kidney to live. If both their kidneys stop working, it is possible for them to get a transplanted kidney from someone who is willing to give up one of their kidneys. But new kidneys are in short supply; people needing them often have to wait years. A poor couple heard that a man will pay them $10,000 to sell him a kidney to save the life of his 12-year-old son. The husband wants to do it because they need the money, but the wife is unsure because it would be her kidney they would sell to the man and she is afraid it could cause problems. Should people be allowed to take money for their kidneys or should this be forbidden? ***Question:*** **Should people be allowed to take money for their kidneys or should this be forbidden?**

*Please vote by circling one option:*

***OPTION # 1—*** Selling one of your kidneys for money is okay

***OPTION # 2—*** Human organs like kidneys can be donated for free to another person but not sold to them for money

***OPTION # 3—*** Undecided

*How sure are you of your opinion? (Circle one)*

Certain Very Sure Sure So-so Not very sure Not sure at all

Table 3. *The topic 4 count of students' straw poll and certainty side preference*

| *Side preference* | *Certainty* | *Group* | | | *Total* |
|---|---|---|---|---|---|
| | | Mixed-evidence | Supporting-evidence | Control | |
| Sell | Certain | 1 | 1 | 0 | 2 |
| | Very Sure | 3 | 1 | 3 | 7 |
| | Sure | 1 | 1 | 4 | 6 |
| | So-so | 0 | 3 | 0 | 3 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Donate | Certain | 5 | 4 | 2 | 11 |
| | Very Sure | 3 | 3 | 5 | 11 |
| | Sure | 4 | 1 | 1 | 6 |
| | So-so | 1 | 1 | 1 | 3 |
| | Not very sure | 0 | 0 | 1 | 1 |
| | Not sure at all | 0 | 0 | 0 | 0 |
| Undecided | Certain | 0 | 2 | 2 | 4 |
| | Very Sure | 0 | 0 | 0 | 0 |
| | Sure | 0 | 0 | 0 | 0 |
| | So-so | 1 | 1 | 0 | 2 |
| | Not very sure | 0 | 0 | 0 | 0 |
| | Not sure at all | 0 | 1 | 1 | 2 |

Table 4. *The topic 4 count of students on each side of the topic.*

| *Condition* | *Sell Side* | *Donate Side* | *Total* |
|---|---|---|---|
| Mixed-evidence group | 7 | 12 | 19 |
| Supporting-evidence group | 9 | 10 | 19 |
| Control group | 9 | 11 | 20 |

Table 5. *Topic 4 shared & student-generated evidence questions and answers*.

| | | Evidence: | | | | |
|---|---|---|---|---|---|---|
| | Type | Stance | Presentation to: | Dialog session: | Evidence question: | Evidence answer: |
| 1 | Shared evidence | S + | Mixed- ev. – both sides | Sell 1; Donate 3 | Do people die because they can't get a new kidney in time? | Yes, in 2005, 3000 people in the USA died while waiting for a donated kidney. |
| | | | Supporting-ev. – Sell side | 1 | | |
| 2 | | S + | Supporting-ev. – Sell side | 2 | What is a kidney and why would you die without one? | Your kidneys are bean-shaped organs, each about the size of your fist. They are located near the middle of your back, just below the rib cage. The kidneys are sophisticated reprocessing machines. Every day, your kidneys process about 200 quarts of blood to separate out about 2 quarts of waste products and extra water. The waste and extra water become urine. If your kidneys did not remove this waste, the waste would build up in the blood and damage your body. The kidneys regulate blood pressure. |
| 3 | | S + | Supporting-ev. – Sell side | 3 | Do people who sell their kidneys need the money they receive? | Yes. Almost always they are very poor and have few ways to earn money. |
| 4 | | S + | Supporting-ev. – Sell side | 4 | What do people do with the money they receive from selling their kidney? | They are free to use it in any way they choose. |
| 5 | | S + | Mixed- ev. – both sides | Sell 5; Donate 6 | Can people who need a kidney find someone who is willing to sell them one? | Yes, it is illegal to sell kidneys in the USA, but a person who wants to buy a kidney can travel to another country where it is not against the law and buy one there. |
| | | | Supporting-ev. – Sell side | 5 | | |
| 6 | | S + | Supporting-ev. – Sell side | 6 | Can someone be forced to sell their kidney? | No. This should never happen. However, there is no way to know if a person feels pressured to sell. |
| 7 | | S – | Mixed- ev. – both sides | Sell 4; Donate 2 | How much do kidneys sell for? | Kidneys can cost anywhere from $40,000 to $60,000. This is more money than the average American earns in one year. |
| 8 | | D + | Mixed- ev. – both sides | Sell 3; Donate 1 | Have many people agree to donate a kidney? | Currently, 28% of Americans choose to be organ donors. However, France has increased their donors to 99% by assuming that everyone wants to donate their organs unless they notify in writing that they don't want to (this is called "opting out"). |
| | | | Supporting-ev. – Donate side | 1 | | |
| 9 | | D + | Supporting-ev. – Donate side | 2 | Is it easy to make known your wish to donate your organs when you die? | Yes. Many states encourage donations by allowing the consent to be noted on a person's driver's license. |
| 10 | | D + | Supporting-ev. – Donate side | 3 | Can a kidney be transplanted from the body of someone who has died? | Yes, if it is done very quickly after death and the donor's family agrees. |
| 11 | | D + | Supporting-ev. – Donate side | 4 | Can donors go back to their normal lives after donating a kidney? | Yes, the large majority of donors recover completely after 4-6 weeks, encounter no serious health problems, and resume their normal lives. |
| 12 | | D + | Mixed- ev. – both sides | Sell 6; Donate 5 | How can a poor person who can't afford to buy a kidney get one? | The only option is to wait for a donor and hope that there will be one soon. |
| | | | Supporting-ev. – Donate side | 5 | | |
| 13 | | D + | Supporting-ev. – Donate side | 6 | Can someone put out a notice that they are looking for a kidney donor? | Yes, as long as they don't offer to pay money for the kidney. |
| 14 | | D – | Mixed- ev. – both sides | Sell 2; Donate 4 | Do enough people volunteer to donate their kidneys for there to be enough kidneys to go around to those who need them? | No. About 90,000 people are on waiting lists to receive kidney transplants, and in 2009 there were only about 10,400 kidneys available from donors. About 6,300 kidneys were transplanted from living donors that year. |
| 15 | Student-generated evidence | SG | Mixed- ev. – both sides | | What about dead people who have their kidneys? | When a person dies if it is done very quickly after death and the donor's family agrees to it a person who just died can donate their kidney to a person who needs one. |
| 16 | | SG | Mixed- ev. – both sides | | How long can people last without a kidney? | It is impossible to accurately predict how long a person can last without working kidneys because every person is different - a person could live for one week or two days. The kidneys are sophisticated reprocessing machines and your body needs them to function. |
| 17 | | SG | Supporting-ev. – both sides | | What is opting out? | "Opting out" is a term to describe putting in writing that a person does not want to donate their organs when they die. |

Table 6. *Final topic 4 essay by student A in the mixed-evidence group.*

| |
|---|
| Dear editor,<br>Human organ like kidneys can be donated for free instead of selling because kidney are to expensive and some people can afford. Kidney can cost anywhere from 40,000 to 60,000. This is more money than the average American earn in on year. in 2005, 3000 people in the USA die while waiting for a donates kidney. This means that more and more people will die if they keep on waiting so more and more people should donated their kidney. Also selling kidneys in the USA is illegal. You should not travel to another country just to get something you ned to live, The other side is wrong because selling a kidney is illegal in the USA and it cost to much money. For a person the only option is to wait for a donor hope that there will be one soon. This means that if people keep on waiting then they will ide and some of the People that are waiting are little kids. Do you want little kids to die people should donated instead of selling it. This is why I believe that people should donated instead of selling their own kidneys. |

Note. This essay was written in favor of the donate side of the kidney topic 4.

Table 7. *Final topic 4 essay by student B in the supporting-evidence group.*

| |
|---|
| Dear Editor, People should sell there kidney for money because 3000 people in the usa died while waiting for a donated kidney. Also they should sell there kidney because almost every poor have few ways to earn money. I think they should donate to because if they donate it whould be a faster way to give to the poor people that only have a few ways to earn money. A other reason they should sell there kidney is that they can use the money to get what they want. Aother reason I think they should donate because if they donate it would be a good thing for the hospital. In conclousion I think selling is better. |

Note. This essay was written in favor of the sell side of the kidney topic 4.

Table 8. *Final topic 4 essay by student C in the control group.*

| |
|---|
| Dear Editor,<br>I think that people should sell there kidney because it is an important part of your body and if you donate it your life is not going to be the same as long ago. In addition, if you sell it then you can feed your family with the money and more stuff. On the other hand, the other side say “that if you donate your kidney your giving them a favor because your helping them”. But I don’t agree with them because they have to give you something for saving a kid or a adult life. In my side they say that, “a kidney is an important part of your body which if has to be sell because it is important.” And I agree with them because if you don’t have a kidney and the other has problem then you might die because of that problem. That’s why I think you should sell a kidney instead of donating it. Another reason is people are not willing to give for free a kidney they want something badly so they might sell if instead. |

Note. This essay was written in favor of the sell side of the kidney topic 4.

APPENDIX F

Table 1. *Count of all dictated essays included in the study.*

| | | Mixed-evidence | Supporting-evidence | Control | Total | |
|---|---|---|---|---|---|---|
| Topic 1 | General student | 0 | 0 | 0 | 0 | 0 |
| | Student classified as ELL or SWD | 0 | 0 | 0 | 0 | |
| Topic 2 | General student | 0 | 1 | 0 | 1 | 4 |
| | Student classified as ELL or SWD | 0 | 3 | 0 | 3 | |
| Topic 3 | General student | 0 | 0 | 0 | 0 | 2 |
| | Student classified as ELL or SWD | 0 | 2 | 0 | 2 | |
| Topic 4 | General student | 0 | 0 | 2 | 2 | 6 |
| | Student classified as ELL or SWD | 0 | 4 | 0 | 4 | |
| Transfer topic | General student | 0 | 0 | 0 | 0 | 1 |
| | Student classified as ELL or SWD | 0 | 1 | 0 | 1 | |
| Total | General student | 0 | 1 | 2 | 3 | 13 |
| | Student classified as ELL or SWD | 0 | 10 | 0 | 10 | |

Table 2. *Count of all students that changed preferred position on a topic.*

| | *Topic* | *Group* | *Favored position during the topic* | *Favored position taken in essay* |
|---|---|---|---|---|
| 1 | 1 | Control | Homeschool | Town School |
| 2 | 1 | Control | Homeschool | Town School |
| 3 | 1 | Control | Homeschool | Town School |
| 4 | 1 | Control | Homeschool | Town School |
| 5 | 1 | Mixed-evidence | Homeschool | Town School |
| 1 | 2 | Control | No | Undecided |
| 2 | 2 | Control | No | Yes |
| 3 | 2 | Control | Yes | No |
| 4 | 2 | Control | No | Yes |
| 5 | 2 | Supporting-evidence | No | Yes |
| 6 | 2 | Supporting-evidence | Yes | No |
| 7 | 2 | Supporting-evidence | No | Undecided |
| 8 | 2 | Mixed-evidence | No | Yes |
| 1 | 3 | Control | Adult | Juvenile |
| 2 | 3 | Control | Juvenile | Adult |
| 3 | 3 | Supporting-evidence | Adult | Juvenile |
| 1 | 4 | Control | Donate | Undecided |
| 2 | 4 | Control | Sell | Donate |
| 3 | 4 | Control | Donate | Undecided |
| 4 | 4 | Supporting-evidence | Donate | Sell |
| 5 | 4 | Supporting-evidence | Donate | Sell |
| 6 | 4 | Supporting-evidence | Sell | Undecided |
| 7 | 4 | Supporting-evidence | Donate | Sell |
| 8 | 4 | Mixed-evidence | Donate | Undecided |

# APPENDIX G

Table 1. *Skewness and kurtosis of segments by groups and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Skewness | Statistic | 0.61 | 0.79 | 0.64 | 1.29 | 0.05 | 1.54 | 1.55 | 2.70 | 0.29 | 0.29 | 0.27 | 0.94 |
| | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | Standardized score | 1.14 | 1.41 | 1.23 | 2.46 | 0.08 | 2.73 | 2.96 | 4.79 | 0.55 | 0.52 | 0.54 | 1.73 |
| Kurtosis | Statistic | 0.54 | 1.80 | -0.27 | 1.09 | -1.25 | 1.07 | 2.42 | 8.73 | 0.75 | -0.43 | -1.34 | 1.32 |
| | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | Standardized score | 0.52 | 1.65 | -0.27 | 1.08 | -1.17 | 0.98 | 2.39 | 7.99 | 0.74 | -0.40 | -1.35 | 1.27 |
| *N* = | | 18 | 16 | 19 | 19 | 17 | 16 | 19 | 16 | 19 | 17 | 20 | 18 |

APPENDIX H

Table 1. *Final topic 1 essays evidence frequency and percentage usage.*

| Evidence number | Evidence: | | | Groups: | | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type | Stance | Presentation to: | Mixed-evidence | | Supporting-evidence | | Control | | | |
| 1 | Shared evidence | H + | Mixed-evidence – both sides<br>Supporting-evidence – Homeschool side | 4 | 16% | 6 | 14% | 0 | 0% | 10 | 15% |
| 2 | | H + | Supporting-evidence – Homeschool side | 0 | 0% | 4 | 9% | 0 | 0% | 4 | 6% |
| 3 | | H + | Supporting-evidence – Homeschool side | 0 | 0% | 3 | 7% | 0 | 0% | 3 | 4% |
| 4 | | H + | Supporting-evidence – Homeschool side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 5 | | H + | Mixed-evidence – both sides<br>Supporting-evidence – Homeschool side | 5 | 20% | 2 | 4% | 0 | 0% | 7 | 10% |
| 6 | | H + | Supporting-evidence – Homeschool side | 0 | 0% | 5 | 11% | 0 | 0% | 5 | 7% |
| 7 | | H – | Mixed-evidence – both sides | 5 | 20% | 0 | 0% | 0 | 0% | 5 | 7% |
| 8 | | T + | Mixed-evidence – both sides<br>Supporting-evidence – Town school side | 1 | 4% | 5 | 11% | 0 | 0% | 6 | 9% |
| 9 | | T + | Supporting-evidence – Town school side | 0 | 0% | 3 | 7% | 0 | 0% | 3 | 4% |
| 10 | | T + | Supporting-evidence – Town school side | 0 | 0% | 3 | 7% | 0 | 0% | 3 | 4% |
| 11 | | T + | Supporting-evidence – Town school side | 0 | 0% | 2 | 4% | 0 | 0% | 2 | 3% |
| 12 | | T + | Mixed-evidence – both sides<br>Supporting-evidence – Town school side | 5 | 20% | 2 | 4% | 0 | 0% | 7 | 10% |
| 13 | | T + | Supporting-evidence – Town school side | 0 | 0% | 5 | 11% | 0 | 0% | 5 | 7% |
| 14 | | T – | Mixed-evidence – both sides | 3 | 12% | 0 | 0% | 0 | 0% | 3 | 4% |
| 15 | Personal evidence | PE | | 2 | 8% | 5 | 11% | 0 | 0% | 7 | 10% |
| | | | | 25 | 100% | 45 | 100% | 0 | 0% | 70 | 100% |

Table 2. *Final topic 2 essays evidence frequency and percentage usage.*

| Evidence number | Evidence: | | | Groups: | | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type | Stance | Presentation to: | Mixed-evidence | | Supporting-evidence | | Control | | | |
| 1 | Shared evidence | Y + | Mixed-evidence – both sides<br>Supporting-evidence –Yes side | 7 | 22% | 1 | 4% | 0 | 0% | 8 | 14% |
| 2 | | Y + | Supporting-evidence –Yes side | 0 | 0% | 5 | 20% | 0 | 0% | 5 | 9% |
| 3 | | Y + | Supporting-evidence –Yes side | 0 | 0% | 1 | 4% | 0 | 0% | 1 | 2% |
| 4 | | Y + | Supporting-evidence –Yes side | 0 | 0% | 1 | 4% | 0 | 0% | 1 | 2% |
| 5 | | Y + | Mixed-evidence – both sides<br>Supporting-evidence –Yes side | 10 | 31% | 1 | 4% | 0 | 0% | 11 | 19% |
| 6 | | Y + | Supporting-evidence –Yes side | 0 | 0% | 3 | 12% | 0 | 0% | 3 | 5% |
| 7 | | Y – | Mixed-evidence – both sides | 3 | 9% | 0 | 0% | 0 | 0% | 3 | 5% |
| 8 | | N + | Mixed-evidence – both sides<br>Supporting-evidence – No side | 2 | 6% | 3 | 12% | 0 | 0% | 5 | 9% |
| 9 | | N + | Supporting-evidence – No side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 10 | | N + | Supporting-evidence – No side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 11 | | N + | Supporting-evidence – No side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 12 | | N + | Mixed-evidence – both sides<br>Supporting-evidence – No side | 5 | 16% | 3 | 12% | 0 | 0% | 8 | 14% |
| 13 | | N + | Supporting-evidence – No side | 0 | 0% | 2 | 8% | 0 | 0% | 2 | 4% |
| 14 | | N – | Mixed-evidence – both sides | 4 | 13% | 0 | 0% | 0 | 0% | 4 | 7% |
| 15 | Personal evidence | PE | | 1 | 3% | 5 | 20% | 0 | 0% | 6 | 10% |
| | | | | 32 | 100% | 25 | 100% | 0 | 0% | 57 | 100% |

Table 3. *Final topic 3 essays evidence frequency and percentage usage.*

| Evidence number | Evidence: | | | Groups: | | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type | Stance | Presentation to: | Mixed-evidence | | Supporting-evidence | | Control | | | |
| 1 | Shared evidence | J + | Mixed- ev. – both sides<br>Supporting- ev. –Juvenile side | 9 | 27% | 3 | 10% | 0 | 0% | 12 | 18% |
| 2 | | J + | Supporting- ev. –Juvenile side | 0 | 0% | 3 | 10% | 0 | 0% | 3 | 4% |
| 3 | | J + | Supporting- ev. –Juvenile side | 0 | 0% | 3 | 10% | 0 | 0% | 3 | 4% |
| 4 | | J + | Supporting- ev. –Juvenile side | 0 | 0% | 2 | 7% | 0 | 0% | 2 | 3% |
| 5 | | J + | Mixed- ev. – both sides<br>Supporting- ev. –Juvenile side | 3 | 10% | 2 | 7% | 0 | 0% | 5 | 7% |
| 6 | | J + | Supporting- ev. –Juvenile side | 0 | 0% | 2 | 7% | 0 | 0% | 2 | 3% |
| 7 | | J – | Mixed- ev. – both sides | 6 | 18% | 0 | 0% | 0 | 0% | 6 | 9% |
| 8 | | A + | Mixed- ev. – both sides<br>Supporting- ev. – Adult side | 5 | 15% | 1 | 3% | 0 | 0% | 6 | 9% |
| 9 | | A + | Supporting- ev. – Adult side | 0 | 0% | 7 | 23% | 0 | 0% | 7 | 10% |
| 10 | | A + | Supporting- ev. – Adult side | 0 | 0% | 2 | 7% | 0 | 0% | 2 | 3% |
| 11 | | A + | Supporting- ev. – Adult side | 0 | 0% | 4 | 13% | 0 | 0% | 4 | 6% |
| 12 | | A + | Mixed- ev. – both sides<br>Supporting- ev. – Adult side | 1 | 3% | 1 | 3% | 0 | 0% | 2 | 3% |
| 13 | | A + | Supporting- ev. – Adult side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 14 | | A – | Mixed- ev. – both sides | 8 | 24% | 0 | 0% | 0 | 0% | 8 | 12% |
| 15 | Student-generated evidence | SG | Mixed-ev. – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 16 | | SG | Mixed- ev. – both sides | 1 | 3% | 0 | 0% | 0 | 0% | 1 | 1% |
| 17 | | SG | Mixed- ev. – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 18 | | SG | Supporting-ev. – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 19 | | SG | Control – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 20 | | SG | Control – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 21 | | SG | Control – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 22 | | SG | Control – both sides | 0 | 0% | 0 | 0% | 5 | 83% | 5 | 7% |
| 23 | Personal evidence | PE | | 0 | 0% | 0 | 0% | 1 | 17% | 1 | 1% |
| | | | | 33 | 100% | 30 | 100% | 6 | 100% | 69 | 100% |

Table 4. *Final topic 4 essays evidence frequency and percentage usage.*

| Evidence number | Evidence: | | | Group: | | | | | | Overall | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Type | Stance | Presentation to: | Mixed-evidence | | Supporting-evidence | | Control | | | |
| 1 | Shared evidence | S + | Mixed-ev. – both sides | 14 | 19% | 5 | 13% | 0 | 0% | 19 | 17% |
| | | | Supporting-evidence –Sell side | | | | | | | | |
| 2 | | S + | Supporting-evidence –Sell side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 3 | | S + | Supporting-evidence –Sell side | 0 | 0% | 7 | 18% | 0 | 0% | 7 | 6% |
| 4 | | S + | Supporting-evidence –Sell side | 0 | 0% | 4 | 10% | 0 | 0% | 4 | 4% |
| 5 | | S + | Mixed-ev. – both sides | 19 | 26% | 3 | 8% | 0 | 0% | 22 | 19% |
| | | | Supporting-evidence –Sell side | | | | | | | | |
| 6 | | S + | Supporting-evidence –Sell side | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 7 | | S – | Mixed-ev. – both sides | 13 | 18% | 0 | 0% | 0 | 0% | 13 | 12% |
| 8 | | D + | Mixed-ev. – both sides | 7 | 10% | 7 | 18% | 0 | 0% | 14 | 13% |
| | | | Supporting-ev. – Donate side | | | | | | | | |
| 9 | | D + | Supporting-ev. – Donate side | 0 | 0% | 2 | 5% | 0 | 0% | 2 | 2% |
| 10 | | D + | Supporting-ev. – Donate side | 0 | 0% | 3 | 8% | 0 | 0% | 3 | 3% |
| 11 | | D + | Supporting-ev. – Donate side | 0 | 0% | 3 | 8% | 0 | 0% | 3 | 3% |
| 12 | | D + | Mixed-ev. – both sides | 4 | 6% | 2 | 5% | 0 | 0% | 6 | 5% |
| | | | Supporting-ev. – Donate side | | | | | | | | |
| 13 | | D + | Supporting-ev. – Donate side | 0 | 0% | 2 | 5% | 0 | 0% | 2 | 2% |
| 14 | | D – | Mixed-ev. – both sides | 5 | 7% | 0 | 0% | 0 | 0% | 5 | 4% |
| 15 | Student-generated evidence | SG | Mixed-ev. – both sides | 5 | 7% | 0 | 0% | 0 | 0% | 5 | 4% |
| 16 | | SG | Mixed-ev. – both sides | 5 | 7% | 0 | 0% | 0 | 0% | 5 | 4% |
| 17 | | SG | Supporting-ev. – both sides | 0 | 0% | 0 | 0% | 0 | 0% | 0 | 0% |
| 18 | Personal evidence | PE | | 0 | 0% | 1 | 2% | 1 | 100% | 2 | 2% |
| | | | | 72 | 100% | 39 | 100% | 1 | 100% | 112 | 100% |

# APPENDIX I

Table 1. *Evidence used at least one time versus not used by group and time.*

| | Groups: | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | | Overall | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| *Did not use evidence in the essay* | 6 | 2 | 2 | 1 | 1 | 3 | 6 | 0 | 19 | 17 | 14 | 17 | 26 | 22 | 22 | 18 |
| *Used evidence at least once in the essay* | 12 | 14 | 17 | 18 | 16 | 13 | 13 | 16 | 0 | 0 | 6 | 1 | 28 | 27 | 36 | 35 |
| *Percentage of evidence used at least once in the essay* | 67% | 88% | 90% | 95% | 94% | 81% | 68% | 100% | 0% | 0% | 30% | 6% | 52% | 55% | 62% | 66% |

Table 2. *Skewness and kurtosis of evidence used at least one time by group and time.*

| | | Groups: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Skewness | Statistic | -0.77 | -2.51 | -2.79 | -4.36 | -4.12 | -1.77 | -0.86 | 0.00 | 0.00 | 0.00 | 0.95 | 4.24 |
| | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.0 | 0.0 | 0.51 | 0.54 |
| | Standardized score | -1.44 | -4.45 | -5.34 | -8.32 | -7.49 | -3.14 | - 1.65 | 0.00 | 0.00 | 0.00 | 1.85 | 7.92 |
| Kurtosis | Statistic | -1.59 | 4.89 | 6.51 | 19.00 | 17.00 | 1.29 | -1.42 | 0.00 | 0.00 | 0.00 | -1.24 | 18.00 |
| | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.063 | 1.09 | 1.01 | 1.09 | 0.00 | 0.00 | 0.99 | 1.04 |
| | Standardized score | -1.54 | 4.49 | 6.42 | 18.74 | 15.99 | 1.18 | -1.39 | 0.00 | 0.00 | 0.00 | -1.25 | 17.34 |

Table 3. *Pairwise comparisons for evidence used at least one time by group and time.*

| *Groups* | | *Test statistic* | *Std. error* | *Std. test statistic* | *Sig.* | *Adj. Sig.* |
|---|---|---|---|---|---|---|
| Control-Topic 1 | Mixed-evidence-Topic 4 | 1.00 | 0.276 | 3.623 | 0.00 | 0.019* |
| Control-Topic 1 | Supporting-evidence-Topic 1 | 1.00 | 0.276 | 3.623 | 0.00 | 0.019* |
| Control-Topic 1 | Supporting-evidence-Topic 4 | 1.00 | 0.276 | 3.623 | 0.00 | 0.019* |
| Control-Topic 2 | Mixed-evidence-Topic 4 | 1.00 | 0.276 | 3.623 | 0.00 | 0.019* |
| Control-Topic 2 | Supporting-evidence-Topic 1 | 1.00 | 0.276 | 3.623 | 0.00 | 0.019* |
| Control-Topic 2 | Supporting-evidence-Topic 4 | 1.00 | 0.276 | 3.623 | 0.00 | 0.019* |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s. = not significantly different from zero ( $p > 0.05$).

Table 4. *Pairwise comparisons for evidence used at least one time by the control group.*

| *Time points essays* | *Test statistic* | *Std. error* | *Std. test statistic* | *Sig.* | *Adj. Sig.* |
|---|---|---|---|---|---|
| Topic 1– Topic 2 | 0.000 | 0.115 | 0.000 | 1.000 | 1.000 |
| Topic 1 – Topic 4 | - 0.067 | 0.115 | - 0.577 | 0.564 | 1.000 |
| Topic 1 – Topic 3 | - 0.333 | 0.115 | - 2.887 | 0.004 | 0.023* |
| Topic 2 – Topic 4 | - 0.067 | 0.115 | - 0.577 | 0.564 | 1.000 |
| Topic 2 – Topic 3 | - 0.333 | 0.115 | - 2.887 | 0.004 | 0.023* |
| Topic 4 – Topic 3 | 0.267 | 0.115 | 2.309 | 0.021 | 0.126 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s. = not significantly different from zero ( $p > 0.05$).

APPENDIX J

Table 1. *Skewness and kurtosis of evidence-based segments by group and time.*

| | | Groups | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Skewness | Statistic | 0.46 | -0.29 | -0.33 | 0.49 | 0.78 | 0.13 | 0.12 | 0.77 | 0.00 | 0.00 | 0.95 | 4.24 |
| | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | Standardized score | 0.85 | -0.52 | -0.63 | 0.94 | 1.42 | 0.23 | 0.23 | 1.38 | 0.00 | 0.00 | 1.86 | 7.85 |
| Kurtosis | Statistic | -0.89 | -0.57 | -0.52 | -0.18 | 0.18 | -1.46 | -1.39 | 0.15 | 0.00 | 0.00 | -1.24 | 18.00 |
| | Std. error | 1.04 | 1.20 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | Standardized score | -0.86 | -0.48 | -0.51 | -0.18 | 0.17 | -1.34 | -1.38 | 0.14 | 0.00 | 0.00 | -1.25 | 17.31 |

Table 2.1. *Fixed effects for evidence-based segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 49.917 | 5 | 189 | 0.000*** |
| Class | 13.504 | 2 | 189 | 0.000*** |
| Time Point | 7.989 | 1 | 189 | 0.005** |
| Class x Time Point | 6.750 | 2 | 189 | 0.001*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 2.2. *Fixed coefficients for evidence-based segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | -0.099 | 0.150 | -0.659 | 0.511 | -0.395 | 0.197 |
| Class = Mixed-evidence | 0.759 | 0.393 | 1.933 | 0.55 | -0.016 | 1.533 |
| Class = Supporting-evidence | 2.312 | 0.460 | 5.027 | 0.000*** | 1.405 | 3.219 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.025 | 0.019 | 1.342 | 0.181 | -0.012 | 0.062 |
| Time Point x Class = Mixed-evidence | 0.184 | 0.053 | 3.448 | 0.001*** | 0.079 | 0.289 |
| Time Point x Class = Supporting-evidence | -0.047 | 0.056 | -0.855 | 0.393 | -0.157 | 0.062 |
| Time Point x Class = Control | 0[a] | | | | | |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 2.3. *Estimated means for evidence-based segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 1.455 | 0.083 | 1.291 | 1.620 |
| Mixed-evidence | 2.233 | 0.175 | 1.887 | 2.579 |
| Supporting-evidence | 2.043 | 0.173 | 1.701 | 2.385 |
| Control | 0.090 | 0.042 | 0.007 | 0.172 |

Table 2.4. *Pairwise contrasts for evidence-based segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.19 | 0.247 | 0.769 | 189 | 0.443 | - 0.297 | 0.676 |
| Mixed-evidence | Control | 2.143 | 0.180 | 11.885 | 189 | 0.000*** | 1.708 | 2.579 |
| Supporting-evidence | Control | 1.954 | 0.178 | 10.961 | 189 | 0.000*** | 1.551 | 2.356 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 2.5. *Overall test results for evidence-based segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 124.028 | 2 | 189 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

APPENDIX K

Table 1. *Skewness and kurtosis of functionally used evidence-based segments by group and time.*

| | | Groups: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Skewness | Statistic | 0.98 | 0.01 | 0.25 | 0.67 | 1.72 | 0.51 | 0.305 | 1.13 | 0.00 | 0.00 | 2.12 | 4.24 |
| | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.524 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | Standardized score | 1.83 | 0.01 | 0.48 | 1.28 | 3.13 | 0.94 | 0.582 | 2.00 | 0.00 | 0.00 | 4.15 | 7.92 |
| Kurtosis | Statistic | 0.90 | -1.23 | -0.69 | 0.56 | 2.56 | -1.06 | -1.46 | 0.68 | 0.00 | 0.00 | 2.78 | 18.00 |
| | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | Standardized score | 0.87 | -1.13 | -0.68 | 0.55 | 2.41 | -0.97 | -1.44 | 0.62 | 0.00 | 0.00 | 2.79 | 17.30 |

Table 2.1. *Fixed effects for functionally used evidence.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 43.375 | 5 | 208 | 0.000*** |
| Class | 6.813 | 2 | 208 | 0.001*** |
| Time Point | 16.595 | 1 | 208 | 0.000*** |
| Class x Time Point | 11.557 | 2 | 208 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 2.2. *Fixed coefficients for functionally used evidence.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | - 0.027 | 0.03 | - 0.892 | 0.374 | - 0.087 | 0.033 |
| Class = Mixed-evidence | 0.113 | 0.288 | 0.392 | 0.696 | - 0.455 | 0.682 |
| Class = Supporting-evidence | 1.301 | 0.354 | 0.3674 | 0.000*** | 0.603 | 1.999 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.011 | 0.007 | 1.662 | 0.098 | - 0.002 | 0.024 |
| Time Point x Class = Mixed-evidence | 0.206 | 0.043 | 4.805 | 0.000*** | 0.121 | 0.29 |
| Time Point x Class = Supporting-evidence | 0.012 | 0.044 | 0.26 | 0.795 | - 0.076 | 0.099 |
| Time Point x Class = Control | 0[a] | | | | | |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 2.3. *Estimated means for functionally used evidence.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 1.072 | 0.071 | 0.931 | 1.212 |
| Mixed-evidence | 1.718 | 0.154 | 1.415 | 2.021 |
| Supporting-evidence | 1.442 | 0.146 | 1.155 | 1.729 |
| Control | 0.055 | 0.027 | 0.001 | 0.108 |

Table 2.4. *Pairwise contrasts for functionally used evidence.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.276 | 0.212 | 1.303 | 208 | 0.194 | - 0.141 | 0.694 |
| Mixed-evidence | Control | 1.664 | 0.156 | 10.657 | 208 | 0.000*** | 1.287 | 2.04 |
| Supporting-evidence | Control | 1.388 | 0.148 | 9.362 | 208 | 0.000*** | 1.053 | 1.722 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 2.5. *Overall test results for functionally used evidence.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 97.51 | 2 | 208 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

# APPENDIX L

Table 1. *Skewness and kurtosis of all functional types of evidence-based segments by group and time.*

| | | | Groups: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Support-own evidence | Skewness | Statistic | 1.18 | 0.00 | 0.35 | 0.60 | 1.99 | 0.55 | 0.66 | 1.02 | 0.00 | 0.00 | 2.12 | 4.24 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 2.19 | 0.00 | 0.67 | 1.15 | 3.63 | 0.97 | 1.27 | 1.82 | 0.00 | 0.00 | 4.15 | 7.92 |
| | Kurtosis | Statistic | 0.93 | -0.92 | 0.19 | -0.38 | 4.00 | -0.39 | -0.93 | 2.15 | 0.00 | 0.00 | 2.78 | 18.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.89 | -0.84 | 0.19 | -0.38 | 3.76 | -0.36 | -0.92 | 1.97 | 0.00 | 0.00 | 2.79 | 17.34 |
| Weaken-other evidence | Skewness | Statistic | 2.71 | 3.03 | 2.79 | 0.74 | 1.87 | 0.00 | 3.34 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 5.05 | 5.37 | 5.34 | 1.42 | 3.39 | 0.00 | 6.37 | 3.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kurtosis | Statistic | 5.98 | 9.09 | 6.51 | 0.06 | 1.67 | 0.00 | 11.19 | 1.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 5.76 | 8.33 | 6.42 | 0.06 | 1.57 | 0.00 | 11.04 | 1.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| Support-other evidence | Skewness | Statistic | 0.00 | 0.00 | 2.79 | 1.21 | 0.00 | 4.00 | 4.36 | 2.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.00 | 0.00 | 5.34 | 2.30 | 0.00 | 7.09 | 8.32 | 4.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kurtosis | Statistic | 0.00 | 0.00 | 6.51 | 0.33 | 0.00 | 16.00 | 19.00 | 4.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.00 | 0.00 | 6.42 | 0.32 | 0.00 | 14.67 | 18.74 | 4.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| Weaken-own evidence | Skewness | Statistic | 0.00 | 0.00 | 0.00 | 2.04 | 0.00 | 4.00 | 0.00 | 2.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 3.89 | 0.00 | 7.09 | 0.00 | 4.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kurtosis | Statistic | 0.00 | 0.00 | 0.00 | 3.15 | 0.00 | 16.00 | 0.00 | 4.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 3.11 | 0.00 | 14.67 | 0.00 | 4.49 | 0.00 | 0.00 | 0.00 | 0.00 |

Table 2. *Skewness and kurtosis of all functional types of evidence used at least one time by group and time.*

| | | | Groups: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Support-own evidence | Skewness | Statistic | -0.24 | -1.28 | -2.04 | -0.59 | -0.99 | -1.28 | -0.35 | -1.77 | 0.00 | 0.00 | 2.12 | 4.24 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | -0.44 | -2.29 | -3.92 | -1.13 | -1.80 | -2.29 | -0.67 | -3.16 | 0.00 | 0.00 | 4.16 | 7.85 |
| | Kurtosis | Statistic | -2.20 | -0.44 | 2.41 | -1.86 | -1.17 | -0.44 | -2.12 | 1.29 | 0.00 | 0.00 | 2.78 | 18.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | -2.12 | -0.40 | 2.39 | -1.84 | -1.10 | -0.40 | -2.09 | 1.18 | 0.00 | 0.00 | 2.81 | 17.31 |
| Weaken-other evidence | Skewness | Statistic | 2.71 | 2.51 | 2.80 | -1.17 | 1.87 | 0.00 | 2.79 | 1.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 5.02 | 4.48 | 5.38 | -2.25 | 3.4 | 0.00 | 5.37 | 3.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kurtosis | Statistic | 5.98 | 4.89 | 6.51 | -0.72 | 1.67 | 0.00 | 6.51 | 1.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 5.75 | 4.49 | 6.45 | -0.71 | 1.58 | 0.00 | 6.45 | 1.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| Support-other evidence | Skewness | Statistic | 0.00 | 0.00 | 2.79 | 0.59 | 0.00 | 4.00 | 4.36 | 2.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.00 | 0.00 | 5.37 | 1.13 | 0.00 | 7.14 | 8.38 | 4.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kurtosis | Statistic | 0.00 | 0.00 | 6.51 | -1.86 | 0.00 | 16.00 | 19.00 | 4.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.00 | 0.00 | 6.45 | -1.84 | 0.00 | 14.68 | 18.81 | 4.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| Weaken-own evidence | Skewness | Statistic | 0.00 | 0.00 | 0.00 | 1.55 | 0.00 | 4.00 | 0.00 | 2.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 2.98 | 0.00 | 7.14 | 0.00 | 4.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| | Kurtosis | Statistic | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 16.00 | 0.00 | 4.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 0.42 | 0.00 | 14.68 | 0.00 | 4.49 | 0.00 | 0.00 | 0.00 | 0.00 |

Table 3.1. *Fixed effects for support-own evidence-based segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 29.987 | 5 | 208 | 0.000*** |
| Class | 12.016 | 2 | 208 | 0.000*** |
| Time Point | 0.255 | 1 | 208 | 0.614 |
| Class x Time Point | 0.12 | 2 | 208 | 0.887 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 3.2. *Fixed effects for support-own evidence-based segments (no interaction).*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 48.928 | 3 | 210 | 0.000*** |
| Class | 64.951 | 2 | 210 | 0.000*** |
| Time Point | 2.506 | 1 | 210 | 0.115 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 3.3. *Fixed coefficients for support-own evidence-based segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | - 0.023 | 0.033 | - 0.689 | 0.492 | - 0.089 | 0.043 |
| Class = Mixed-evidence | 0.972 | 0.122 | 7.947 | 0.000*** | 0.731 | 1.213 |
| Class = Supporting-evidence | 1.153 | 0.136 | 8.495 | 0.000*** | 0.885 | 1.42 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.01 | 0.006 | 1.583 | 0.115 | - 0.003 | 0.023 |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 3.4. *Estimated means for support-own evidence-based segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.763 | 0.06 | 0.644 | 0.881 |
| Mixed-evidence | 1.026 | 0.119 | 0.791 | 1.262 |
| Supporting-evidence | 1.207 | 0.133 | 0.945 | 1.47 |
| Control | 0.054 | 0.027 | 0.002 | 0.107 |

Table 3.5. *Pairwise contrasts for support-own evidence-based segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | - 0.181 | 0.179 | - 1.012 | 210 | 0.313 | - 0.533 | 0.172 |
| Mixed-evidence | Control | 0.972 | 0.122 | 7.947 | 210 | 0.000*** | 0.696 | 1.248 |
| Supporting-evidence | Control | 1.153 | 0.136 | 8.495 | 210 | 0.000*** | 0.825 | 1.48 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 3.6. *Overall test results for support-own evidence-based segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 64.951 | 2 | 210 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

Table 4.1. *Fixed effects for weaken-other evidence-based segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 8.445 | 5 | 152 | 0.000*** |
| Class | 1.081 | 2 | 152 | 0.342 |
| Time Point | 7.401 | 1 | 152 | 0.007** |
| Class x Time Point | 3.786 | 2 | 152 | 0.025* |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 4.2. *Fixed coefficients for weaken-other evidence-based segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | 0.000 | 0.000 | 0.000 | 1.000 | - 0.000 | 0.000 |
| Class = Mixed-evidence | - 0.401 | 0.337 | -1.188 | 0.237 | - 1.067 | 0.266 |
| Class = Supporting-evidence | 0.089 | 0.102 | 0.867 | 0.387 | - 0.113 | 0.29 |
| Class = Control | 0[a] | | | | | |
| Time Point | - 0.000 | 0.000 | - 0.000 | 1.000 | - 0.000 | 0.000 |
| Time Point x Class = Mixed-evidence | 0.111 | 0.041 | 2.716 | 0.007** | 0.03 | 0.191 |
| Time Point x Class = Supporting-evidence | 0.006 | 0.013 | 0.443 | 0.658 | - 0.02 | 0.032 |
| Time Point x Class = Control | 0[a] | | | | | |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 4.3. *Estimated means for weaken-other evidence-based segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.189 | 0.035 | 0.12 | 0.259 |
| Mixed-evidence | 0.435 | 0.096 | 0.247 | 0.624 |
| Supporting-evidence | 0.133 | 0.044 | 0.045 | 0.22 |
| Control | - 0.000 | 0.000 | - 0.000 | 0.000 |

Table 4.4. *Pairwise contrasts for weaken-other evidence-based segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.303 | 0.105 | 2.876 | 152 | 0.006** | 0.081 | 0.525 |
| Mixed-evidence | Control | 0.435 | 0.096 | 4.557 | 152 | 0.000*** | 0.204 | 0.666 |
| Supporting-evidence | Control | 0.133 | 0.044 | 3.000 | 152 | 0.006** | 0.033 | 0.233 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 4.5. *Overall test results weaken-other evidence-based segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 14.884 | 2 | 152 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

Table 5. *Pairwise comparisons for weaken-other evidence used at least one time by group and time.*

| *Groups* | | *Test statistic* | *Std. error* | *Std. test statistic* | *Sig.* | *Adj. Sig.* |
|---|---|---|---|---|---|---|
| Control-Topic 1 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Control-Topic 2 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Control-Topic 3 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Control-Topic 4 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Supporting-evidence-Topic 1 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Supporting-evidence-Topic 2 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Supporting-evidence-Topic 3 | Mixed-evidence-Topic 4 | 1.00 | 0.198 | 5.055 | 0.000 | 0.000*** |
| Supporting-evidence-Topic 4 | Mixed-evidence-Topic 4 | 0.833 | 0.198 | 4.212 | 0.000 | 0.002** |
| Mixed-evidence- Topic 1 | Mixed-evidence-Topic 4 | - 0.833 | 0.198 | -4.212 | 0.000 | 0.002** |
| Mixed-evidence- Topic 2 | Mixed-evidence-Topic 4 | -1.00 | 0.198 | -5.055 | 0.000 | 0.000*** |
| Mixed-evidence- Topic 3 | Mixed-evidence-Topic 4 | - 0.833 | 0.198 | -4.212 | 0.000 | 0.002** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s. = not significantly different from zero ( $p > 0.05$).

Table 6. *Pairwise comparisons for weaken-other evidence used at least one time by the mixed-evidence group.*

| *Time points essays* | *Test statistic* | *Std. error* | *Std. test statistic* | *Sig.* | *Adj. Sig.* |
|---|---|---|---|---|---|
| Topic 1– Topic 2 | 0.000 | 0.181 | 0.000 | 1.00 | 1.00 |
| Topic 1 – Topic 3 | 0.000 | 0.181 | 0.000 | 1.00 | 1.00 |
| Topic 1 – Topic 4 | -0.667 | 0.181 | -3.693 | 0.000 | 0.001*** |
| Topic 2 – Topic 3 | 0.000 | 0.181 | 0.000 | 1.00 | 1.00 |
| Topic 2 – Topic 4 | -0.667 | 0.181 | -3.693 | 0.000 | 0.001*** |
| Topic 3 – Topic 4 | -0.667 | 0.181 | -3.693 | 0.000 | 0.001*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s. = not significantly different from zero ( $p > 0.05$).

Table 7. *Pairwise comparisons for weaken-other evidence used at least one time in final-topic 4 essays by group.*

| *Groups* | | *Test statistic* | *Std. error* | *Std. test statistic* | *Sig.* | *Adj. Sig.* |
|---|---|---|---|---|---|---|
| Control-Topic 4 | Supporting-evidence-Topic 4 | -0.143 | 0.184 | -0.775 | 0.439 | 1.000 |
| Control-Topic 4 | Mixed-evidence-Topic 4 | -0.714 | 0.184 | -3.873 | 0.000 | 0.000*** |
| Supporting-evidence-Topic 4 | Mixed-evidence-Topic 4 | -0.571 | 0.184 | -3.098 | 0.002 | 0.006** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s. = not significantly different from zero ( $p > 0.05$).

Table 8.1. *Fixed effects for support-other evidence-based segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 3.226 | 5 | 152 | 0.009** |
| Class | 1.074 | 2 | 152 | 0.344 |
| Time Point | 5.493 | 1 | 152 | 0.02* |
| Class x Time Point | 3.364 | 2 | 152 | 0.037* |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 8.2. *Fixed coefficients for support-other evidence-based segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | 0.000 | 0.000 | 0.000 | 1.00 | -0.000 | 0.000 |
| Class = Mixed-evidence | -0.202 | 0.192 | -1.055 | 0.293 | -0.582 | 0.177 |
| Class = Supporting-evidence | -0.032 | 0.031 | -1.018 | 0.31 | -0.093 | 0.03 |
| Class = Control | 0[a] | | | | | |
| Time Point | -0.000 | 0.000 | -0.000 | 1.00 | -0.000 | 0.000 |
| Time Point x Class = Mixed-evidence | 0.047 | 0.024 | 1.94 | 0.054 | -0.001 | 0.094 |
| Time Point x Class = Supporting-evidence | 0.012 | 0.007 | 1.722 | 0.087 | -0.002 | 0.026 |
| Time Point x Class = Control | 0[a] | | | | | |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 8.3. *Estimated means support-other evidence-based segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.069 | 0.02 | 0.029 | 0.11 |
| Mixed-evidence | 0.149 | 0.054 | 0.043 | 0.255 |
| Supporting-evidence | 0.059 | 0.03 | 0.001 | 0.118 |
| Control | -0.00 | 0.000 | -0.000 | 0.000 |

Table 8.4. *Pairwise contrasts for support-other evidence-based segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.09 | 0.061 | 1.461 | 152 | 0.146 | -0.032 | 0.211 |
| Mixed-evidence | Control | 0.149 | 0.054 | 2.775 | 152 | 0.019* | 0.019 | 0.279 |
| Supporting-evidence | Control | 0.059 | 0.03 | 2.00 | 152 | 0.095 | -0.008 | 0.126 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 8.5. *Overall test results for support-other evidence-based segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 5.851 | 2 | 152 | 0.004** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

Table 9.1. *Fixed effects for weaken-own evidence-based segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 2.508 | 5 | 135 | 0.033* |
| Class | 0.964 | 2 | 135 | 0.384 |
| Time Point | 4.526 | 1 | 135 | 0.035* |
| Class x Time Point | 2.403 | 2 | 135 | 0.094 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 9.2. *Fixed effects weaken-own evidence-based segments (no interaction).*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 1.57 | 3 | 157 | 0.199 |
| Class | 2.088 | 2 | 157 | 0.127 |
| Time Point | 2.927 | 1 | 157 | 0.089 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 9.3. *Fixed coefficients for weaken-own evidence-based segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | -0.102 | 0.082 | -1.244 | 0.215 | -0.263 | 0.06 |
| Class = Mixed-evidence | 0.109 | 0.054 | 2.041 | 0.043* | 0.004 | 0.215 |
| Class = Supporting-evidence | 0.044 | 0.044 | 1.000 | 0.319 | -0.043 | 0.131 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.014 | 0.008 | 1.711 | 0.089 | -0.002 | 0.029 |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 9.4. *Estimated means for weaken-own evidence-based segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.052 | 0.018 | 0.016 | 0.087 |
| Mixed-evidence | 0.11 | 0.037 | 0.036 | 0.184 |
| Supporting-evidence | 0.045 | 0.03 | -0.014 | 0.104 |
| Control | 0.001 | 0.033 | -0.064 | 0.065 |

Table 9.5. *Pairwise contrasts for weaken-own evidence-based segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.065 | 0.048 | 1.364 | 157 | 0.349 | -0.043 | 0.174 |
| Mixed-evidence | Control | 0.109 | 0.054 | 2.041 | 157 | 0.129 | -0.02 | 0.239 |
| Supporting-evidence | Control | 0.044 | 0.044 | 1.00 | 157 | 0.349 | -0.045 | 0.133 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 9.6. *Overall test results for weaken-own evidence-based segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 2.088 | 2 | 157 | 0.127 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

APPENDIX M

Table 1. *Skewness and kurtosis of all functional types of non-evidence argument types by group and time.*

| | | | Groups: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Support-own | Skewness | Statistic | 0.28 | 0.95 | 1.50 | 0.52 | 1.97 | 1.76 | 1.64 | 2.23 | 0.49 | 0.89 | -0.07 | 2.15 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.42 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.52 | 1.69 | 2.88 | 1.24 | 3.58 | 3.14 | 3.15 | 3.98 | 0.94 | 1.62 | -0.14 | 3.98 |
| | Kurtosis | Statistic | -1.14 | -0.21 | 3.97 | -0.59 | 4.87 | 2.96 | 1.26 | 5.99 | -0.26 | -0.29 | -1.12 | 5.83 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | -1.09 | -0.19 | 3.93 | -0.58 | 4.59 | 2.72 | 1.23 | 5.49 | -0.26 | -0.27 | -1.13 | 5.61 |
| Weaken-other | Skewness | Statistic | 1.94 | 1.43 | 2.66 | 0.68 | 1.53 | 2.51 | 2.79 | 1.73 | 0.94 | 1.81 | 1.85 | 0.50 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 3.59 | 2.55 | 5.12 | 1.31 | 2.78 | 4.48 | 5.37 | 3.09 | 1.81 | 3.29 | 3.63 | 0.93 |
| | Kurtosis | Statistic | 3.46 | 0.78 | 6.88 | -1.13 | 1.09 | 4.89 | 6.51 | 1.69 | -0.54 | 3.04 | 2.86 | -0.97 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 3.33 | 0.72 | 6.81 | -1.12 | 1.03 | 4.49 | 6.45 | 1.55 | -0.53 | 2.87 | 2.89 | -0.93 |
| Support-other | Skewness | Statistic | 4.24 | 1.51 | 1.55 | 4.36 | 4.12 | 1.77 | 2.16 | 0.89 | 0.99 | 1.33 | 1.85 | 1.36 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 7.85 | 2.69 | 2.98 | 8.38 | 7.49 | 3.16 | 4.15 | 1.59 | 1.90 | 2.42 | 3.63 | 2.52 |
| | Kurtosis | Statistic | 18.00 | 1.58 | 0.42 | 19.00 | 17.00 | 2.01 | 4.25 | -1.39 | -0.88 | 1.57 | 2.86 | 1.13 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 17.31 | 1.45 | 0.42 | 18.81 | 16.04 | 1.84 | 4.21 | -1.28 | -0.87 | 1.48 | 2.89 | 1.09 |
| Weaken-own | Skewness | Statistic | 0.00 | 0.00 | 0.00 | 1.77 | 0.00 | 0.00 | 0.00 | 2.51 | 4.36 | 0.00 | 0.00 | 2.71 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 3.40 | 0.00 | 0.00 | 0.00 | 4.48 | 8.38 | 0.00 | 0.00 | 5.02 |
| | Kurtosis | Statistic | 0.00 | 0.00 | 0.00 | 2.54 | 0.00 | 0.00 | 0.00 | 4.89 | 19.00 | 0.00 | 0.00 | 5.98 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 2.51 | 0.00 | 0.00 | 0.00 | 4.49 | 18.81 | 0.00 | 0.00 | 5.75 |

Table 2. *Skewness and kurtosis of all functional types of non-evidence argument types used at least one time by group and time.*

| | | | Groups: | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Mixed-evidence | | | | Supporting-evidence | | | | Control | | | |
| | | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Support-own | Skewness | Statistic | -0.57 | -1.46 | -1.28 | -0.35 | 0.00 | 0.39 | -0.57 | 0.86 | 0.00 | 0.00 | -4.12 | -1.25 |
| | | Std. error | 0.56 | 0.53 | 0.56 | 0.52 | 0.54 | 0.55 | 0.56 | 0.52 | 0.52 | 0.52 | 0.55 | 0.51 |
| | | Standardized score | -1.02 | -2.75 | -2.29 | -0.67 | 0.00 | 0.71 | -1.02 | 1.65 | 0.00 | 0.00 | -7.49 | -2.45 |
| | Kurtosis | Statistic | -1.93 | 0.14 | -0.44 | -2.12 | 0.00 | -2.11 | -1.93 | -1.42 | 0.00 | 0.00 | 17.00 | -0.49 |
| | | Std. error | 1.09 | 1.04 | 1.09 | 1.01 | 1.04 | 1.06 | 1.09 | 1.01 | 1.01 | 1.01 | 1.06 | 0.99 |
| | | Standardized score | -1.02 | -2.75 | -2.29 | -0.67 | 0.00 | 0.71 | -1.02 | 1.65 | 0.00 | 0.00 | -7.49 | -2.45 |
| Weaken-other | Skewness | Statistic | 1.01 | 0.89 | 2.04 | 0.12 | 0.99 | 2.51 | 2.79 | 1.28 | 0.35 | 0.68 | 1.25 | -1.09 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 1.87 | 1.59 | 3.92 | 0.23 | 1.80 | 4.48 | 5.37 | 2.29 | 0.67 | 1.24 | 2.45 | -2.02 |
| | Kurtosis | Statistic | -0.94 | -1.39 | 2.41 | -2.24 | -1.17 | 4.89 | 6.51 | -0.44 | -2.12 | -1.77 | -0.49 | -0.94 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | -0.90 | -1.28 | 2.39 | -2.22 | -1.10 | 4.49 | 6.45 | -0.40 | -2.09 | -1.67 | -0.49 | -0.90 |
| Support-other | Skewness | Statistic | 4.24 | 0.89 | 1.55 | 4.36 | 4.12 | 1.28 | 1.55 | 0.89 | 0.35 | 0.13 | 1.25 | 0.77 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 7.85 | 1.59 | 2.98 | 8.38 | 7.49 | 2.29 | 2.98 | 1.59 | 0.67 | 0.24 | 2.45 | 1.43 |
| | Kurtosis | Statistic | 18.00 | -1.39 | 0.42 | 19.00 | 17.00 | -0.44 | 0.42 | -1.39 | -2.12 | -2.27 | -0.49 | -1.59 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 17.31 | -1.28 | 0.42 | 18.81 | 16.04 | -0.40 | 0.42 | -1.28 | -2.09 | -2.14 | -0.49 | -1.53 |
| Weaken-own | Skewness | Statistic | 0.00 | 0.00 | 0.00 | 1.17 | 0.00 | 0.00 | 0.00 | 2.51 | 4.36 | 0.00 | 0.00 | 2.71 |
| | | Std. error | 0.54 | 0.56 | 0.52 | 0.52 | 0.55 | 0.56 | 0.52 | 0.56 | 0.52 | 0.55 | 0.51 | 0.54 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | 2.25 | 0.00 | 0.00 | 0.00 | 4.48 | 8.38 | 0.00 | 0.00 | 5.02 |
| | Kurtosis | Statistic | 0.00 | 0.00 | 0.00 | -0.72 | 0.00 | 0.00 | 0.00 | 4.89 | 19.00 | 0.00 | 0.00 | 5.98 |
| | | Std. error | 1.04 | 1.09 | 1.01 | 1.01 | 1.06 | 1.09 | 1.01 | 1.09 | 1.01 | 1.06 | 0.99 | 1.04 |
| | | Standardized score | 0.00 | 0.00 | 0.00 | -0.71 | 0.00 | 0.00 | 0.00 | 4.49 | 18.81 | 0.00 | 0.00 | 5.75 |

Table 3.1. *Fixed effects for support-own segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 10.725 | 5 | 206 | 0.000*** |
| Class | 18.272 | 2 | 206 | 0.000*** |
| Time Point | 1.437 | 1 | 206 | 0.232 |
| Class x Time Point | 9.017 | 2 | 206 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 3.2. *Fixed coefficients for support-own segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | 3.015 | 0.494 | 6.10 | 0.000*** | 2.04 | 3.989 |
| Class = Mixed-evidence | -0.719 | 0.633 | -1.136 | 0.257 | -1.966 | 0.529 |
| Class = Supporting-evidence | -2.786 | 0.552 | -5.042 | 0.000*** | -3.875 | -1.697 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.27 | 2735.774 | 0.000 | 1.000 | -5393.437 | 5393.976 |
| Time Point x Class = Mixed-evidence | -0.38 | 2735.774 | -0.000 | 1.000 | -5394.086 | 5393.327 |
| Time Point x Class = Supporting-evidence | -0.189 | 2735.774 | -0.000 | 1.000 | -5393.896 | 5393.517 |
| Time Point x Class = Control | 0[a] | | | | | |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 3.3. *Estimated means for support-own segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 1.628 | 0.126 | 1.379 | 1.877 |
| Mixed-evidence | 1.468 | 0.215 | 1.044 | 1.892 |
| Supporting-evidence | 0.837 | 0.194 | 0.454 | 1.22 |
| Control | 2.579 | 0.244 | 2.097 | 3.061 |

Table 3.4. *Pairwise contrasts support-own segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.631 | 0.29 | 2.178 | 206 | 0.031* | 0.06 | 1.203 |
| Mixed-evidence | Control | -1.111 | 0.326 | -3.412 | 206 | 0.002** | -1.846 | -0.376 |
| Supporting-evidence | Control | -1.742 | 0.312 | -5.58 | 206 | 0.000*** | -2.496 | -0.989 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 3.5. *Overall test results for support-own segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 15.583 | 2 | 206 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

Table 4.1. *Fixed effects for weaken-other segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 3.913 | 5 | 208 | 0.002** |
| Class | 0.50 | 2 | 208 | 0.607 |
| Time Point | 2.72 | 1 | 208 | 0.101 |
| Class x Time Point | 2.767 | 2 | 208 | 0.065 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 4.2. *Fixed effects for weaken-other segments (no interaction).*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 7.422 | 3 | 210 | 0.000*** |
| Class | 8.649 | 2 | 210 | 0.000*** |
| Time Point | 3.311 | 1 | 210 | 0.07 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 4.3. *Fixed coefficients for weaken-other segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | 0.527 | 0.133 | 3.975 | 0.000*** | 0.266 | 0.789 |
| Class = Mixed-evidence | -0.217 | 0.126 | -1.721 | 0.087 | -0.466 | 0.032 |
| Class = Supporting-evidence | -0.45 | 0.113 | -3.9886 | 0.000*** | -0.673 | -0.228 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.023 | 0.013 | 1.82 | 0.07 | -0.002 | 0.048 |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 4.4. *Estimated means for weaken-other segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.48 | 0.047 | 0.387 | 0.572 |
| Mixed-evidence | 0.485 | 0.081 | 0.325 | 0.645 |
| Supporting-evidence | 0.252 | 0.059 | 0.135 | 0.369 |
| Control | 0.702 | 0.097 | 0.511 | 0.893 |

Table 4.5. *Pairwise contrasts weaken-other segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.233 | 0.10 | 2.33 | 210 | 0.041* | 0.008 | 0.458 |
| Mixed-evidence | Control | -0.217 | 0.126 | -1.721 | 210 | 0.087 | -0.466 | 0.032 |
| Supporting-evidence | Control | -0.45 | 0.113 | -3.986 | 210 | 0.000*** | -0.723 | -0.178 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 4.6. *Overall test results for weaken-other segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 8.649 | 2 | 210 | 0.000*** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

Table 5.1. *Fixed effects for support-other segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 2.931 | 5 | 208 | 0.014* |
| Class | 2.874 | 2 | 208 | 0.059 |
| Time Point | 0.503 | 1 | 208 | 0.479 |
| Class x Time Point | 1.215 | 2 | 208 | 0.299 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 5.2. *Fixed effects for support-other segments (no interaction).*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 4.677 | 3 | 210 | 0.003** |
| Class | 6.429 | 2 | 210 | 0.002** |
| Time Point | 0.731 | 1 | 210 | 0.393 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 5.3. *Fixed coefficients support-other segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | 0.575 | 0.115 | 4.996 | 0.000*** | 0.348 | 0.802 |
| Class = Mixed-evidence | -0.34 | 0.096 | -3.561 | 0.000*** | -0.528 | -0.152 |
| Class = Supporting-evidence | -0.224 | 0.105 | -2.132 | 0.034* | -0.43 | -0.017 |
| Class = Control | 0[a] | | | | | |
| Time Point | -0.009 | 0.01 | -0.855 | 0.393 | -0.029 | 0.012 |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 5.4. *Estimated means for support-other segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.32 | 0.039 | 0.244 | 0.396 |
| Mixed-evidence | 0.168 | 0.048 | 0.073 | 0.262 |
| Supporting-evidence | 0.284 | 0.064 | 0.157 | 0.411 |
| Control | 0.508 | 0.083 | 0.345 | 0.671 |

Table 5.5. *Pairwise contrasts for support-other segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | -0.117 | 0.08 | -1.457 | 210 | 0.147 | -0.274 | 0.041 |
| Mixed-evidence | Control | -0.34 | 0.096 | -3.561 | 210 | 0.001*** | -0.571 | -0.11 |
| Supporting-evidence | Control | -0.224 | 0.105 | -2.132 | 210 | 0.068 | -0.46 | 0.013 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 5.6. *Overall test results for support-other segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 6.429 | 2 | 210 | 0.002** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

Table 6.1. *Fixed effects for weaken-own segments.*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 1.263 | 5 | 173 | 0.282 |
| Class | 0.756 | 2 | 173 | 0.471 |
| Time Point | 4.981 | 1 | 173 | 0.027* |
| Class x Time Point | 1.011 | 2 | 173 | 0.366 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 6.2. *Fixed effects for weaken-own segments (no interaction).*

| Source | F | df1 | df2 | Sig. |
|---|---|---|---|---|
| Corrected Model | 2.686 | 3 | 174 | 0.048* |
| Class | 1.531 | 2 | 174 | 0.219 |
| Time Point | 7.46 | 1 | 174 | 0.007** |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 6.3. *Fixed coefficients for weaken-own segments.*

| Model Term | Coefficient | Std. Error | t | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | -0.079 | 0.05 | -1.594 | 0.113 | -0.177 | 0.019 |
| Class = Mixed-evidence | 0.041 | 0.037 | 1.095 | 0.275 | 0.033 | 0.114 |
| Class = Supporting-evidence | -0.011 | 0.031 | -0.357 | 0.722 | -0.073 | 0.05 |
| Class = Control | 0[a] | | | | | |
| Time Point | 0.016 | 0.006 | 2.731 | 0.007** | 0.004 | 0.028 |

Note. [a] This coefficient is set to zero because it is redundant. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Probability distribution: Poisson; Link function: Identity.

Table 6.4. *Estimated means for weaken-own segments.*

| Estimates | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Grand Mean | 0.051 | 0.015 | 0.021 | 0.081 |
| Mixed-evidence | 0.082 | 0.028 | 0.027 | 0.137 |
| Supporting-evidence | 0.03 | 0.018 | -0.005 | 0.065 |
| Control | 0.041 | 0.026 | -0.01 | 0.092 |

Table 6.5. *Pairwise contrasts for weaken-own segments.*

| Groups Pairwise Contrasts | | Contrast estimate | Std. Error | t | df | Adj. Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 0.052 | 0.03 | 1.748 | 174 | 0.247 | -0.02 | 0.124 |
| Mixed-evidence | Control | 0.041 | 0.037 | 1.095 | 174 | 0.55 | -0.043 | 0.125 |
| Supporting-evidence | Control | -0.011 | 0.031 | -0.357 | 174 | 0.722 | -0.073 | 0.05 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The sequential Bonferroni adjusted significance used.

Table 6.6. *Overall test results for weaken-own segments.*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 1.521 | 2 | 174 | 0.219 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.Probability distribution: Poisson; Link function: Identity.

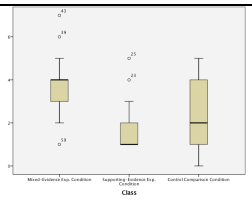
APPENDIX N

Table 1. *Mean number of functionally used evidence in the transfer year-end assessment essays by group.*

| | | Groups | | |
|---|---|---|---|---|
| | | Mixed-evidence | Supporting-evidence | Control |
| Mean | | 3.76 | 1.76 | 2.43 |
| (Standard deviation) | | (1.34) | (1.20) | (1.32) |
| *N* = | | 21 | 17 | 21 |
| Skewness | Statistic | 0.48 | 1.74 | 0.17 |
| | Std. error | 0.50 | 0.55 | 0.50 |
| | Standardized score | 0.96 | 3.16 | 0.33 |
| Kurtosis | Statistic | 0.97 | 2.49 | -0.96 |
| | Std. error | 0.97 | 1.06 | 0.97 |
| | Standardized score | 0.99 | 2.35 | -0.98 |
| Tests of Normality-Shapiro-Wilk | Statistic | 0.92 | 0.69 | 0.93 |
| | df | 21 | 17 | 21 |
| | Significance | 0.117 | 0.000*** | 0.114 |

Table 2. *Transfer year-end assessment essays statistical analyses results.*

Boxplots



Levene's test for equality of variances

**Test of Homogeneity of Variances**

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .541 | 2 | 56 | .585 |

ANOVA

**Tests of Between-Subjects Effects**

Dependent Variable: a1.1

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
|---|---|---|---|---|---|---|
| Corrected Model | 40.090[a] | 2 | 20.045 | 11.692 | .000 | .295 |
| Intercept | 410.777 | 1 | 410.777 | 239.592 | .000 | .811 |
| Class | 40.090 | 2 | 20.045 | 11.692 | .000 | .295 |
| Error | 96.011 | 56 | 1.714 | | | |
| Total | 570.000 | 59 | | | | |
| Corrected Total | 136.102 | 58 | | | | |

a. R Squared = .295 (Adjusted R Squared = .269)

Pairwise comparisons

| Groups | | Mean difference | Std. Error | Sig. | 95% C. I. | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Mixed-evidence | Supporting-evidence | 1.997 | 0.427 | 0.000*** | 0.94 | 3.05 |
| Mixed-evidence | Control | 1.333 | 0.404 | 0.005** | 0.34 | 2.33 |
| Control | Supporting-evidence | 0.664 | 0.427 | 0.377 | -0.39 | 1.72 |

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.The adjustment for multiple comparisons: Bonferroni.

Note. * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; n.s. = not significantly different from zero ( $p > 0.05$).

Table 3. *Transfer topic essay by student A in the mixed-evidence group.*

| |
|---|
| Dear Editor, I believe that cigarette should be banned each year an estimated 443,000 people die prematurely from smoking or exposure to secondhand smoke, and another 8.6 million live with a serious illness caused by smoking. They should also be banned because they give you cancer and I think that is the biggest disease in our world. Smoking has kill a lot of people like George Harrison, a musician for the Beatles, was a smoker and die of lung cancer at the age of 58. As much as 96 billion a year is estimated lost in medical cost and lost worker productivity due to tobacco. An estimated 17 million Americans try to quit smoking each year, and about 8% of the succeed. If more American can try to quit smoking that 8% is going to increase. The nicotine in cigarettes causes fast acting chemical reactions in your brain that have been show to relieve anxiety and nervousness. If teen smoke the teacher will notice that he is acting strange and they might get expel. This is why I believe that cigarettes should be banned. I hope that you will accept this and banned them for good. |

Note. This essay was written in favor of banning cigarette sales of the transfer topic.

Table 4. *Transfer topic essay by student B in the supporting-evidence group.*

| |
|---|
| I think cgarettes sales be banded because each year an estimate of 443,000 people die prematurely form smoking or expose to second handshake. This means that so many people die in the second hand from smoking. A other reason they should be banded. |

Note. This essay was written in favor of banning cigarette sales of the transfer topic.

Table 5. *Transfer topic essay by student C in the control group.*

| |
|---|
| Cigarette's should be banned because it is bad for the environment like your lungs stop work and you can die. Another thing is "each year an estimated 443,000 people die prematurely from smoking or exposure to second hand smoke, and another 8.6 million live with a serious illness caused by smoking." In addition, this means that that can hurt important part of your body. Like lungs, organs, and more. In the other hand that can hurt others, kids, and there self. Some people think cigarette is good because they say "A woman named Helen faith reichert currently lives in NYC; she is 108 years old and has been smoking half a pack of cigarettes every day for over 80 years." But maybe she has problem or a disease that she need cigarette because the recipe that they use in the cigarette maybe it is a medicane to stop the disease. Even though farmers make a lot of money from growing tobacco they are hurting other people life by making cigarettes which they can grow fruit or vegetables instead to make money. |

Note. This essay was written in favor of banning cigarette sales of the transfer topic.

# APPENDIX O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**TEACHER PAY ESSAY**

**Name: _____ Date: _____**

The ColumbiaTown School has to decide how to pay its teachers. Some think every teacher should get the same pay. Others think that teachers should be paid according to how much experience they have, with teachers getting more pay for each year of teaching experience they have.

***Which do you think is the better plan?*** *(Circle one below)*

**All get the same pay** *OR* **Experienced teachers get more pay**

***How sure are you of your opinion?*** *(Circle one below)*

Certain Very Sure Sure So-So Not very sure Not sure at all

---

***Make the argument below for why the choice you made about teacher pay is the better one. You may continue on the back if needed.***

***Are there any questions you would want to have answers to that would help you make your argument? List them below.***

**ARGUMENT CHOICE**
**Chris & Jose**

**Name: _____ Date: _____**

*Instructions:*
Chris and Jose are expert arguers. They are having an argument about why students fail in school. Here are parts of their conversation. Chris always speaks first. Then two choices appear underneath what Chris says – these two choices are possible responses Jose might make. Read what Chris says; then decide and circle what response expert arguer Jose is more likely to make.

---

*Chris says:* "Students fail in school because they don't try hard enough to do well on tests."

*Does Jose say A or B in response to Chris?*

A. "No matter how hard students work, some just aren't good test-takers."
B. "Some students act out in class instead of paying attention to the teacher."

---

*Chris says:* "Success at school is based on work other than just tests, like essays and homework."

*Does Jose say A or B in response to Chris?*

A. "Some tests are so important that students can't graduate if they don't pass them."
B. "Some students have a bad attitude and don't take tests seriously."

---

*Chris says:* "If students study hard, they can learn what they need to know to pass the most important tests."

*Does Jose say A or B in response to Chris?*

A. "A student can be prepared enough to do well on a test, but then panic and fail."
B. "Some students have so many problems that tests don't seem that important."

---

*Chris says:* "If students have a bad attitude, it's because the teacher isn't encouraging them."

*Does Jose say A or B in response to Chris?*

A. "Many students fail even though they have great teachers."
B. "Some students fail because friends distract them from listening to the teacher."

---

*Chris says:* "If students act out, it's because the teacher isn't disciplining them."

*Does Jose say A or B in response to Chris?*

A. "Many students fail even though they have very strict teachers."
B. "Some students have problems at home and so they can't pay attention to the teacher in school."

---

*Chris says:* "If a teacher is too strict, it can cause students to lose motivation."

*Does Jose say A or B in response to Chris?*

A. "Students who are motivated to do well in school will do so regardless of the teacher."
B. "Some students have problems at home and so they aren't motivated to focus on what the teacher is saying."

---

*Chris says:* "Many students have problems at home and still do well in school."

*Does Jose say A or B in response to Chris?*

A. "If problems with parents are bad enough, it because impossible to concentrate on schoolwork."
B. "If there isn't good communication between parents and teachers, students' grades can suffer."

# ARGUMENT CHOICE
## Anna, Carmen, Al & Rick

**Name: _____ Date: _____**

*Instructions:*
Read the conversations below and answer the questions that follow each of the conversations.

---

Why do teenagers start smoking?

*Anna says,* "It's because they see ads that make smoking look attractive. A good-looking guy in neat clothes with a cigarette in his mouth is someone you would like to be like."
*Carmen says,* "It's because they see ads that make smoking look attractive. When cigarette ads were banned from TV, smoking went down."

***Which is the stronger argument? (Circle one below)***
Anna's argument OR Carmen's argument

***Why is the argument you chose better?*** *(Write your answer below)*

***What's not so good about the other argument?*** *(Write your answer below)*

---

Al and Rick both think people are wrong to say that violent video games are bad for kids.

*Al says,* "That kids know the violence in the games is fake and it doesn't bother them."
*Rick says,* "Teen crime has gone down in the last 10 years, though more teens are playing violent games."

***Which is the better argument against violent video games being bad for kids? (Circle one below)***
Al's argument OR Rick's argument

***Why is the argument you chose better?*** *(Write your answer below)*

***What's not so good about the other argument?*** *(Write your answer below)*

---

Anna and Carmen disagree with Al and Rick. They both think violent video games are bad for kids.

Anna says, "Someone I know flunked out of school and had to repeat a grade after starting to play video games a lot."
Carmen says, "I did a school project and found out that kids in my school who had higher grades spent less time playing video games."

***Which is the stronger argument? (Circle one below)***
Anna's argument OR Carmen's argument

***Why is the argument you chose better?*** *(Write your answer below)*

***What's not so good about the other argument?*** *(Write your answer below)*

## TOPICS STRAW POLLS

**Name:** _____ **Date:** _____

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together. **A problem has come up!** The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home. As a town, we must decide what to allow: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?

***Please vote by circling one option:***

Home school okay Nick must go to town school Undecided

***How sure are you of your opinion? (Circle one)***

Certain Very Sure Sure So-So Not very sure Not sure at all

---

Doris and Roger at the ColumbiaTown school are misbehaving and disrupting the classroom. Even though they have been given warnings, their behavior does not improve. The school has told them and their parents that if they cannot follow the rules, they will be expelled. Expulsion is permanent and means that they can never come back to the ColumbiaTown school. They will have to be home-schooled or look for a school in another town. Should the school board expel the misbehaving kids or should they allow these children to stay? The school board has the legal right to make this decision.

***Issue: Should they be expelled or should they be allowed to stay at school?***

Circle one: **Expel** **Allow them to stay** **Undecided**

***How sure are you of your opinion? (Circle one)***

Certain Very Sure Sure So-So Not very sure Not sure at all

---

A poor South American country is being invaded by a neighboring country, which wants to take it over. The people in the invaded country are being injured and killed. The country has sought help from the United Nations (UN) and the UN members have voted to help. The UN has asked developed countries, including the United States to provide peacekeeping forces for the invaded country. There are risks to the US troops who enter the country. Throughout its history, the United States has had to decide whether to be concerned about another country's problems. Some take the view that the US should help this South American country. Others take the view that we should focus on problems at home.

**Question: Should the US get involved or not get involved (circle one)?**

Yes No Undecided

**How sure are you about your opinion? (Circle One)**

Certain Very Sure Sure So-so Not very sure Not sure at all

---

In medical research labs across the country animals are used to test new medications. This testing makes it possible to develop new medications that can save human lives.

Question: **Should companies be allowed to conduct this research upon animals?**

Yes No Undecided

**How sure are you of your opinion? (Circle one)**

Certain Very Sure Sure So-so Not very sure Not sure at all

---

## ARGUMENT CURRICULUM YEAR 1
## INTRODUCTION SESSION

### COMMON CORE STATE STANDARDS:
W.6.1, W.6.1 (a), W.6.1 (b), W.6.1 (c), W.6.1 (d), W.6.1 (e), L.6.1, L.6.2, L.6.2 (b), L.6.3

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Attendance & Participation log
-Argument Choice – Anna, Carmen, Al & Rick (1 copy per student)
-Topics Straw Poll (1 copy per student)
-Students with Missing work from previous session work

**PROCEDURES**

**1.** (4 minute) **Introduce activities of today to students**— "We're developing important intellectual skills that you'll use in middle school, high school and beyond. We'll do it by having you think deeply about social topics, arguing with your peers and writing persuasive essays. Through arguing, you dig more deeply into understanding why you think what you think, and you exercise your intellectual skills like an athlete trains for their sport. So today we are going to find out your (class as whole, not by student) argument skills with a few activities."

**2**. (13 minutes) **Pass out to students & instruct them to complete the following poll (Argument Choice – Anna, Carmen, Al & Rick) based on their own individual opinion on the topic**— Collect their polls, remind them (if necessary) to remain silent and respect others who are still working

**3.** (13 minutes) **Pass out to students & instruct them to complete the following poll (Topics straw poll) based on their own individual opinion on the topic**— Collect their polls, remind them (if necessary) to remain silent and respect others who are still working

**4.** (10-15 minutes) **Introduction to Curriculum:** At this introductory session, the lead coach introduces the class and its purpose and undertakes to generate enthusiasm for its goals and process. Key points:

a. Is arguing good or bad? Arguing, done properly, is GOOD, not something undesirable to be avoided. It accomplishes something important.

b. Socrates claimed: Until you argue about it with OTHERS, you don't really know what you think about something. Others introduce what you haven't thought of. We thus need to think and talk about the topic both with those who AGREE with us and those who DISAGREE with us.

c. Argument is about REASONS. Opinions without reasons are worth nothing. We need to be sure WHY we claim what we do. We can only CONVINCE others with reasons. We also need reasons for DISAGREEING with what another person says.

d. Arguing well is a SKILL. You learn it best by thoughtful PRACTICE with others. That is what we are going to do in this class.

"*We're developing important intellectual skills that you'll use in middle school, high school and beyond. We'll do it by having you think deeply about social topics, arguing with your peers and writing persuasive essays. Through arguing, you dig more deeply into understanding why you think what you think, and you exercise your intellectual skills like an athlete trains for their sport. Even if you're not sure whether you learned something on a particular day, you are, and we have ways of measuring that. All we need you to do is practice. We want to convince the other side that our position is the better one and win our final Showdown. This will take some hard work and time to prepare and lots of practice of argument skills."*

***5. (20 minutes off to the side) Students who have not finished their work from the previous session must work on that while you give the "Introduction to the Curriculum" (# 4)***

## ARGUMENT CURRICULUM YEAR 1
## TOPIC 1, PREGAME – SESSION 1: GENERATING, SHARING & THINKING

### COMMON CORE STATE STANDARDS:
Grade 6: RI. 6.8, W.6.1, W.6.1 (a), W.6.1 (b), W.6.4, W.6.5, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d)

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Based on the opinions expressed in an initial poll on the topic – assign students to either a Pro or Con team for the topic & further divide the students within their own side into small groups of A & B
-Topic 1 Pre-Topic "Letter to the Editor" – Topic 1 (3 sheets per student – cover page & 2 lined pages)
-Topic 1 Solicit Opinion Homework – Topic 1 (3 sheets per student)
-Topic 1 Scenario (A few copies distributed among the groups)
-White Index Cards (Distribute blank sets among the groups)
-Paper Clips
-4 plastic bags
-Attendance & Participation log

**PROCEDURES**

-Physically separate the students within the classroom into a Pro & a Con side
-Further divide the students within their own side into small groups of A & B
-Will have a Homeschool-A, Homeschool-B, Town School-A & Town School-B

**1.** (1 minute) **Introduction to Curriculum:** "*We're developing important intellectual skills that you'll use in middle school, high school and beyond. We'll do it by having you think deeply about social topics, arguing with your peers and writing persuasive essays. Through arguing, you dig more deeply into understanding why you think what you think, and you exercise your intellectual skills like an athlete trains for their sport. Even if you're not sure whether you learned something on a particular day, you are, and we have ways of measuring that. All we need you to do is practice. We want to convince the other side that our position is the better one and win our final Showdown. This will take some hard work and time to prepare and lots of practice of argument skills."*

2. (10 minutes) **Activity: Individual silent activity:** (Distribute the "Topic 1 Pre-Topic 'Letter to the Editor'") – "We would like to know your position and the reasons why you hold this position for this topic. Take this time to write a letter to the editor of the newspaper on this issue using the attached paper. You can take any position you want."

**3. Activity:** "*Our first task is to be sure we have the best reasons for our position. People can have different reasons for being for or against something. We need to get these reasons out on the table and decide what we think of them*."

**A. (5 min) Small-group silent activity**: (Pro-A, Pro-B, Con-A & Con-B teams with index cards) "*Recall why you chose the position you did. What is your most important reason for being in favor of this position? Write it clearly in large print on a card: '_____ is the better position because _____.' If you have time and have a second reason, use a second card to write it."* (*Coach:* Remind and monitor – only one reason per card.)

**B. (5 min) Small-group activity:** (Pro-A, Pro-B, Con-A & Con-B teams with index cards) "*Pass your card to the person on your left. Read & think about the card you receive. If you can't understand it, ask the writer to explain it. Now underneath the reason, REWRITE it using FEWER words."*

**C. (15 min) Small-group discussion:** (Pro-A, Pro-B, Con-A & Con-B teams)
"*Take turns putting each card in the middle of the table. Present your 'fewer-words' version of the reason to the group. Does the person who first wrote the reason agree that this says it best? Does everyone else understand the reason and agree this is the best way to say it? If not, REWRITE until everyone agrees. CIRCLE the final version. Leave the card in the middle of the table. A second person now presents their 'fewer-words' version of a reason to the group. Discuss whether this is the SAME reason already in the middle or a different reason. If it's the same, attach it to the first reason card. If it's different, repeat the same process as above. Continue until all reason cards are on the table*."
(During all group discussions, the Coach circulates to facilitate and keep groups on-task, offering mildly supportive comments, e.g., "That reason sounds good." The Coach can suggest candidates for combination, and, if needed for clarity, can propose rewording: "Is there a better way to say this one?" or (if group can't generate) "Would this be better?")

**D. (10 - 15 min.) Team discussion:** (Pro & Con teams – the 2 small groups on each team combine) -The team COMBINES all its final reason cards in middle of table. "*ARRANGE the cards so the most SIMILAR ones are together. If two reasons are very similar, decide whether they should be combined or stay as separate reasons. Make sure each reason left on the table is a DIFFERENT reason. Our goal now is to put together the team's reasons into one final set we'll use against our opponents. We need to organize them, getting rid of any duplicates and grouping similar ones together, so we'll have them ready to work for us. 1st group put one of your reasons in the center of table. 2nd group, look carefully at it. Does your group have a similar reason? If it's the same, put your card on top of theirs. If it's similar but saying different things, put it next to the one it's similar to. 1st group, make sure you agree. 2nd group, now put another of your cards out, that has a different reason. 1st group, does your group have a similar reason? If it's the same, put your card on top of theirs. If it's similar but saying different things, put it next to the one it's similar to. 2nd group, make sure you agree."* Continue until all cards have been shared. *"Now that all cards are in the middle, DOUBLE CHECK. Is each one a different reason? Put the best way to say it on top. Make changes if needed & fasten "same reason" cards together with the best way to say it on top. These are your team's FINAL REASONs."* Collect all of the teams' main reasons cards & store in plastic bags (one baggie for each team).

**E. (Optional, if time) Team discussion:** Each team takes a vote on which is its strongest reason. Each team shares their one strongest reason with the group. Conclude: *"How good a reason is we'll work more on next time."*

**F. Homework to be handed out & discussed at the end of the class:** Each student takes 3 Opinion Poll sheets home. The assignment: *Ask 3 people their position and reason for their position and record it to bring to the next class.*

**G. After the Class Session**: Collect & review, keeping separate, each team's set of final reason cards. Staple duplicates so they don't become detached and work only with top card. Note any that are so unclear or otherwise problematic that they need to be gone over quickly and revised with the team at beginning of next class. For all others, if possible further abbreviate circled reason to fewer words; use a highlighter to highlight the essential words. Highlight briefest possible expression of the reason.

## TOPIC SCENARIO

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together. *A problem has come up!* The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home. As a town, we must decide what to allow: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?

**HOMESCHOOL TOPIC LETTER TO THE EDITOR**

Name: _____ Date: _____

**Write a Letter to the Editor of the newspaper on this issue using the attached paper.**
**You can take any position you want.**

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together.

**A problem has come up!** The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home.

**As a town, we must decide what to allow: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?**

***Please vote by circling one option:***

Home school okay  Nick must go to town school  Undecided

***How sure are you of your opinion? (Circle one)***

Certain  Very Sure  Sure  So-So  Not very sure  Not sure at all

**TOPIC 1 SOLICIT OPINION HOMEWORK**

Name: _____ Date: _____

Ask three people (not HGMS students) to state their position on this topic and the reason(s) why they hold this position. Talk to the person yourself (phone conversations are okay) and YOU complete this form, based on what the person tells you. Including people outside of the USA is very good if you can do it.

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together. **A problem has come up!** The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home.

***Question:*** **As a town, we must decide what to allow: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?**

---

Person # 1 Name: _____

Person's relation to you _____ (e.g., parent, aunt, friend, etc.)

Position (circle one): **Homeschool okay** **Nick must go to Town School** **Undecided**

Reason:

## ARGUMENT CURRICULUM YEAR 1
## TOPIC 1, PREGAME – SESSION 2: FINALIZING & EVALUATING REASONS

### COMMON CORE STATE STANDARDS
Grade 6: RL.6.1, W.6.1, W.6.5, SL.6.1, SL.6.1 (a), SL.6.1 (b), SL.6.1 (c), & SL.6.1 (d)

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Using 3 index cards pre-label one card each: "Best," "Good" & "So-So" (Create a pre-labeled set for each small group)
-White Index Cards
-Paper Clips
-4 plastic bags with the students' previous sessions main reason cards
-A few copies of the topic 1 scenario for students to reference when needed
-Attendance & Participation log

**PROCEDURES**

**1. (5 min)** ***Team silent activity:*** Switch & distribute Teams' (Pro-A with Pro-B & Con-A with Con-B) main reason cards & provide enough time for each student in the team to read over each of the reason cards. "*These were the reasons for our position that the other team came up with. See what you think of them*."

**2. (5-10 min)** ***Team discussion:*** Each team receives their OWN CARDS BACK, displays them in center of table & gets out their topic 1 solicit opinion homework. *"Think about the reasons the other team had – the ones you just looked over. Were there any your team missed? (If homework was done) Take out & share the sheets you collected for homework. Look at those from people who had the same-side opinion as ours. (Save any other-side opinions for later.) Are there any new ones?" "Now it's time to FINALIZE your team's set of reasons. Are there any you want to add? Remember you want to have the best possible set of reasons to use against your opponents. We want our reasons to hold up against their attacks. If you want to ADD a reason, put it on a card. Be sure it's not a reason you already have & write it in the clearest, shortest possible way. If everyone agrees, add the card to those on the table. This will be our FINAL SET. Go over it a final time & make any changes."* (A desirable goal is at least 6 reasons in final set.)

***3. (5 min) All Class / Full-group discussion:*** Students are asked how they know their reasons are good ones. (How did they choose their "best" reason last session?) This leads to a discussion of what makes a reason a good one and to the idea that reasons may be of different quality. *"Are some reasons really better than other reasons? Or is any reason just as good as any other reason?"*

**4. (10-15 min)** ***Small-group discussion:*** In small groups of 4 (Pro-A, Pro-B, Con-A & Con-B) , ½ of team main reason cards with each group. *"It is now that time where y'all are going to sort your reasons into 3 piles of best, good, & so-so. Talk it over and for each reason card decide WHY a reason belongs in a category before you put it there."*

**5. (10-15 min)** ***Team discussion:*** Back into teams (Pro-A with Pro-B & Con-A with Con-B) *"Now you need to persuade the other half of your team that the reasons in your BEST pile really belong there. If they disagree, try to persuade your teammates with a REASON why the reason is a good one.*

A. *"Present the team with your small groups' BEST pile. Take turns doing this for each of your BEST reasons, until the whole team agrees which reasons are going to be in the team's final set of BEST reasons. These are the ones that are going to do the work for us against our opponents."*

B. Present the team with & follow the same procedure for the Good pile of reasons

C. Present the team with & follow the same procedure for the So-so pile of reasons

***6. (5 min) (If no time, postpone to beginning of next session.) Full-group discussion.*** *"So, how good are our reasons are at this point? Good enough to win?? (Elicit response.) But remember that while we've been doing this, the other side has been coming up with their reasons for having the opposite position on this issue. Soon you're going to hear their reasons! To win the Showdown, we're going to have to pay attention to their reasons too. What do you think some of their reasons might be?"* (If any other-side reasons were obtained as homework, these can now be used as a source.) *Coach may make concluding comment: "I wonder if we're right - that these ARE their reasons. We'll find out soon."* **7. After the Class Session**: Collect each team's final set of Reason cards, separated into the 3 category piles, fastened & labeled, & keep them accessible to student for reference throughout the next class sessions.

***ARGUMENT CURRICULUM YEAR 1***
***TOPIC 1, DIALOG SESSIONS 1-6 GENERAL INFORMATION***

***Common Core Standards Addressed in All Dialog Sessions (1 – 6):***
Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d), L.6.1 & L.6.2

***Student dialog pair rotation schedule for this topic:***

| Tuesday 9/23 | Tuesday 9/30 | Thursday 10/2 | Tuesday 10/7 | Thursday 10/9 | Tuesday 10/14 |
|---|---|---|---|---|---|
| Dialog 1 | Dialog 2 | Dialog 3 | Dialog 4 | Dialog 5 | Dialog 6 |
| H 1 – T 1 | H 1 – T 6 | H 1 – T 5 | H 1 – T 4 | H 1 – T 3 | H 1 – T 2 |
| H 2 – T 2 | H 2 – T 1 | H 2 – T 6 | H 2 – T 5 | H 2 – T 4 | H 2 – T 3 |
| H 3 – T 3 | H 3 – T 2 | H 3 – T 1 | H 3 – T 6 | H 3 – T 5 | H 3 – T 4 |
| H 4 – T 4 | H 4 – T 3 | H 4 – T 2 | H 4 – T 1 | H 4 – T 6 | H 4 – T 5 |
| H 5 – T 5 | H 5 – T 4 | H 5 – T 3 | H 5 – T 2 | H 5 – T 1 | H 5 – T 6 |
| H 6 – T 6 | H 6 – T 5 | H 6 – T 4 | H 6 – T 3 | H 6 – T 2 | H 6 – T 1 |

***General Information During the Game Sessions:***
-Do not fret if there are technology issues rather in case of equipment lacking or breaking down: Opposing pairs can pass a single laptop or writing pad back and forth to conduct the dialog, or use “Topic Game Activity” handout (that is on the last page of this document).

-When reviewing the students’ reflection sheets: Use a check or no check & if it's not done satisfactorily hand it back immediately. The students must actually state what they think they could have said otherwise. If they don't it's not complete. If you don't catch it that day, have them fix it next session.

**ARGUMENT CURRICULUM YEAR 1**
**TOPIC 1, DIALOG GAME – SESSION 1**

**COMMON CORE STATE STANDARDS:** Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d), L.6.1 & L.6.2

**STUDENT DIALOG PAIR ROTATION SCHEDULE FOR THIS TOPIC & THIS DIALOG:**

| Tuesday 9/23 |
|---|
| Dialog 1 |
| H 1 – T 1 |
| H 2 – T 2 |
| H 3 – T 3 |
| H 4 – T 4 |
| H 5 – T 5 |
| H 6 – T 6 |

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Coach prepares a roster pairing each pair to a different opposing pair for each session
-Create & then distribute "Topic Game Activity"
-Distribute 4 copies of the pair schedule information (1 per table)
-Make 20 copies of "Other" reflection sheet (1 per dialog pair)

**PROCEDURES**

***Upon walking into the classroom:*** Have students sit with their dialog pair. Instruct one side to sit at desks/tables in one half of the classroom & the other side to sit at desks/tables in the other side of the room (but next to their dialog partner).

***1. Introduction to dialogs:*** *"Now it's time to hear what your opponents have to say and start working to defeat them. Are you ready to confront them??" (Elicit some student reactions.) "Remember that during the dialog sessions (1) Work TOGETHER to decide what to say (Two heads are better than one! (2) Think carefully about what your opponents have said & RESPOND to it directly; try to weaken their claim; don't just ignore it because you think your point is better."*Give positive & negative examples of what working together means. It does not mean dividing up the work (e.g., you think what to say and I'll type). It does mean talking to one another and working out any disagreement you have before you type.

***2. Dialogs:*** Distribute the "Topic Game Activity" to the dialog pairs on the Home School side as they will start the dialogs today. Explain to the students that they will see their dialog pair names at the top of the paper as well as they names of their opponents. When the dialog pair has the dialog in front of them they need to write their argument in the appropriate cell. When they are done writing, please raise your hand and we will deliver it to their opponents. *"While you're waiting for a response, you can discuss with one another how you think the opponents are going to respond and what would be best to say in return. In other words, PLAN your strategy.*

***3. Reflection Sheets – "Other" Reflection Handout:*** Hand out one copy per same-side dialog pair. Distribute towards the end of the session approximately when there is 20 minutes left in the class session. *"These sheets will help you think about & have a record of today's work, to use in the Showdown & when we prepare for the Showdown. Please discuss with your partner & record yalls' thoughts when you are waiting for a reply from your opposing dialog pair. Today the focus is on what is <u>one</u> of the other side's main arguments & what was your response? Also was there a better counterargument you could have used? You do not have to write verbatim the dialog dialogues but the main point of the other side's reason and your side's response should be clear."*

***4. Wrap – Up:*** Begin approximately 10 minutes before the end of the period that we are about to wrap up the dialogs for the day and to make sure that all the students are making their best arguments! Approximately 7 to 5 minutes before the end of the period ask students to take their last turn in the dialog. Collect all of the reflection sheets.

**TOPIC GAME ACTIVITY**

**PEN & PAPER DIALOG OF _____ & _____**

| Date: |
|---|

| Dialog Pair ID: | Dialog Partner Name: | & | Dialog Partner Name |
|---|---|---|---|
| | | | |
| | | | |

| **Pair ID** | **Words** |
|---|---|
| | |
| | |

## "OTHER" REFLECTION SHEET

Team members _____

Date _____

**Let's think...Starting with the other side's argument**

**One of the other side's MAIN ARGUMENTS was:**

_____

_____

_____

_____

**Our COUNTERARGUMENT against their argument was:**

_____

_____

_____

_____

**Give a specific example of an improved, more effective COUNTERARGUMENT.**

_____

_____

_____

_____

_____

_____

**ARGUMENT CURRICULUM YEAR 1**
**TOPIC 1, DIALOG GAME – SESSION 2**

**COMMON CORE STATE STANDARDS:** Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d), L.6.1 & L.6.2

## STUDENT DIALOG PAIR ROTATION SCHEDULE FOR THIS TOPIC & THIS DIALOG:

| Tuesday 9/30 |
|---|
| Dialog 2 |
| H 1 – T 6 |
| H 2 – T 1 |
| H 3 – T 2 |
| H 4 – T 3 |
| H 5 – T 4 |
| H 6 – T 5 |

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Coach prepares a roster pairing each pair to a different opposing pair for each session
-Create & then distribute "Topic Game Activity"
-Distribute 4 copies of the pair/ dialog schedule information (1 per table)
-Make 20 copies of "Own" reflection sheet (1 per dialog pair)

**PROCEDURES**

***Upon walking into the classroom:*** Have students sit with their dialog pair. Instruct one side to sit at tables in one half of the classroom & the other side to sit at tables in the other side of the room (but next to their dialog partner).

***1. Dialogs:*** Distribute the "Topic Game Activity" the dialog pairs on the Town School side as they will start the dialogs today. *"While you're waiting for a response, you can discuss with one another how you think the opponents are going to respond and what would be best to say in return. In other words, PLAN your strategy."*

***2. Reflection Sheets – "Own" Reflection Handout:*** Hand out one copy per same-side dialog pair. Distribute towards the end of the session approximately when there is 20 minutes left in the class session.*"These sheets will help you think about & have a record of today's work, to use in the Showdown & when we prepare for the Showdown. Please discuss with your partner & record yalls' thoughts when you are waiting for a reply from your opposing dialog pair. Today the focus is on what is <u>one</u> of your side's main arguments & what was the other side's counterargument and your comeback (rebuttal)? Also be clear in proposing if there was a better comeback your side could have used? You do not have to write verbatim the dialog dialogues but the main point of the your side's reason & the other side's response should be clear."*

***3. Wrap – Up:*** Begin approximately 10 minutes before the end of the period that we are about to wrap up the dialogs for the day and to make sure that all the students are making their best arguments! Approximately 7 to 5 minutes before the end of the period ask students to take their last turn in the dialog. Collect all of the reflection sheets.

## "OWN" REFLECTION SHEET

Team members _____

Date _____

**Let's think...Starting with our argument**

**One of our MAIN ARGUMENTS was:**

_____

_____

_____

_____

**Their COUNTERARGUMENT against our argument was:**

_____

_____

_____

_____

**Our COMEBACK was:**

_____

_____

_____

_____

**How can this COMEBACK be improved? Is there a more effective comeback?**

_____

_____

_____

_____

## ARGUMENT CURRICULUM YEAR 1 - TOPIC 1, DIALOG GAME – SESSION 3

**COMMON CORE STATE STANDARDS:** Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d),

**STUDENT DIALOG PAIR ROTATION SCHEDULE FOR THIS TOPIC & THIS DIALOG:**

| Thursday -10/2 |
|---|
| Dialog 3 |
| H 1 – T 5 |
| H 2 – T 6 |
| H 3 – T 1 |
| H 4 – T 2 |
| H 5 – T 3 |
| H 6 – T 4 |

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Coach prepares a roster pairing each pair to a different opposing pair for each session
-Create & then distribute "Topic Game Activity"
-Distribute 4 copies of the pair/ dialog schedule information (1 per table)
-Make 20 copies of "Other" reflection sheet (1 per dialog pair)

**PROCEDURES**

***Upon walking into the classroom:*** Have students sit with their dialog pair. Instruct one side to sit at tables in one half of the classroom & the other side to sit at tables in the other side of the room (but next to their dialog partner).

***1. Dialogs:*** Distribute the "Topic Game Activity" to the dialog pairs on the Home School side as they will start the dialogs today. *"While you're waiting for a response, you can discuss with one another how you think the opponents are going to respond and what would be best to say in return. In other words, PLAN your strategy."*

***2. Reflection Sheets – "Other" Reflection Handout:*** Hand out one copy per same-side dialog pair. Distribute towards the end of the session approximately when there is 20 minutes left in the class session. *"Please discuss with your partner & record yalls' thoughts when you are waiting for a reply from your opposing dialog pair."*

***3. Wrap – Up:*** Begin approximately 10 minutes before the end of the period that we are about to wrap up the dialogs for the day and to make sure that all the students are making their best arguments! Approximately 7 to 5 minutes before the end of the period ask students to take their last turn in the dialog. Collect all of the reflection sheets.

---

## ARGUMENT CURRICULUM YEAR 1 - TOPIC 1, DIALOG GAME – SESSION 4

**COMMON CORE STATE STANDARDS:** Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d),

**STUDENT DIALOG PAIR ROTATION SCHEDULE FOR THIS TOPIC & THIS DIALOG:**

| Tuesday-10/7 |
|---|
| Dialog 4 |
| H 1 – T 4 |
| H 2 – T 5 |
| H 3 – T 6 |
| H 4 – T 1 |
| H 5 – T 2 |
| H 6 – T 3 |

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Coach prepares a roster pairing each pair to a different opposing pair for each session
-Create & then distribute "Topic Game Activity"
-Distribute 4 copies of the pair/ dialog schedule information (1 per table)
-Make 20 copies of "Own" reflection sheet (1 per dialog pair)

**PROCEDURES**

***Upon walking into the classroom:*** Have students sit with their dialog pair. Instruct one side to sit at tables in one half of the classroom & the other side to sit at tables in the other side of the room (but next to their dialog partner).

***1. Dialogs:*** Distribute the "Topic Game Activity" to the dialog pairs on the Town School side as they will start the dialogs today. *"While you're waiting for a response, you can discuss with one another how you think the opponents are going to respond and what would be best to say in return. In other words, PLAN your strategy."*

***2. Reflection Sheets – "Own" Reflection Handout:*** Hand out one copy per same-side dialog pair. Distribute towards the end of the session approximately when there is 20 minutes left in the class session. *"Please discuss with your partner & record yalls' thoughts when you are waiting for a reply from your opposing dialog pair."*

***3. Wrap – Up:*** Begin approximately 10 minutes before the end of the period that we are about to wrap up the dialogs for the day and to make sure that all the students are making their best arguments! Approximately 7 to 5 minutes before the end of the period ask students to take their last turn in the dialog. Collect all of the reflection sheets.

## ARGUMENT CURRICULUM YEAR 1 - TOPIC 1, DIALOG GAME – SESSION 5

**COMMON CORE STATE STANDARDS:** Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d)

**STUDENT DIALOG PAIR ROTATION SCHEDULE FOR THIS TOPIC & THIS DIALOG:**

| Thursday - 10/9 |
|---|
| Dialog 5 |
| H 1 – T 3 |
| H 2 – T 4 |
| H 3 – T 5 |
| H 4 – T 6 |
| H 5 – T 1 |
| H 6 – T 2 |

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Coach prepares a roster pairing each pair to a different opposing pair for each session
-Create & then distribute "Topic Game Activity"
-Distribute 4 copies of the pair/ dialog schedule information (1 per table)
-Make 20 copies of "Other" reflection sheet (1 per dialog pair)

**PROCEDURES**

***Upon walking into the classroom:*** Have students sit with their dialog pair. Instruct one side to sit at tables in one half of the classroom & the other side to sit at tables in the other side of the room (but next to their dialog partner).

***1. Dialogs:*** Distribute the "Topic Game Activity" to the dialog pairs on the Home School side as they will start the dialogs today. *"While you're waiting for a response, you can discuss with one another how you think the opponents are going to respond and what would be best to say in return. In other words, PLAN your strategy."*

***2. Reflection Sheets – "Other" Reflection Handout:*** Hand out one copy per same-side dialog pair. Distribute towards the end of the session approximately when there is 20 minutes left in the class session. *"Please discuss with your partner & record yalls' thoughts when you are waiting for a reply from your opposing dialog pair."*

***3. Wrap – Up:*** Begin approximately 10 minutes before the end of the period that we are about to wrap up the dialogs for the day and to make sure that all the students are making their best arguments! Approximately 7 to 5 minutes before the end of the period ask students to take their last turn in the dialog. Collect all of the reflection sheets.

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## ARGUMENT CURRICULUM YEAR 1 - TOPIC 1, DIALOG GAME – SESSION 6

**COMMON CORE STATE STANDARDS:** Grade 6: RI. 6.7, RI. 6.8, W.6.1, W.6.1 (b), W.6.1 (c), W.6.6, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d),

**STUDENT DIALOG PAIR ROTATION SCHEDULE FOR THIS TOPIC & THIS DIALOG:**

| Tuesday -10/14 |
|---|
| Dialog 6 |
| H 1 – T 2 |
| H 2 – T 3 |
| H 3 – T 4 |
| H 4 – T 5 |
| H 5 – T 6 |
| H 6 – T 1 |

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Coach prepares a roster pairing each pair to a different opposing pair for each session
-Create & then distribute "Topic Game Activity"
-Distribute 4 copies of the pair/ dialog schedule information (1 per table)
-Make 20 copies of "Own" reflection sheet (1 per dialog pair)

**PROCEDURES**

***Upon walking into the classroom:*** Have students sit with their dialog pair. Instruct one side to sit at tables in one half of the classroom & the other side to sit at tables in the other side of the room (but next to their dialog partner).

***1. Dialogs:*** Distribute the "Topic Game Activity" to the dialog pairs on the Town School side as they will start the dialogs today. *"While you're waiting for a response, you can discuss with one another how you think the opponents are going to respond and what would be best to say in return. In other words, PLAN your strategy."*

***2. Reflection Sheets – "Own" Reflection Handout:*** Hand out one copy per same-side dialog pair. Distribute towards the end of the session approximately when there is 20 minutes left in the class session. *"Please discuss with your partner & record yalls' thoughts when you are waiting for a reply from your opposing dialog pair."*

***3. Wrap – Up:*** Begin approximately 10 minutes before the end of the period that we are about to wrap up the dialogs for the day and to make sure that all the students are making their best arguments! Approximately 7 to 5 minutes before the end of the period ask students to take their last turn in the dialog. Collect all of the reflection sheets.

---

## ARGUMENT CURRICULUM YEAR 1
## TOPIC 1, ENDGAME – SESSION 1: PREPARING TO COUNTER OTHERS' REASONS

**COMMON CORE STATE STANDARDS: GRADE 6 –** RL.6.1, RI.6.8, W.6.1, W.6.1 (b), W.6.5, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d)

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Copies of the topic 1 scenario for students to reference when needed
-Paper Clips
-2 plastic bags (Pro & Con sides)
-Attendance & Participation log
-Copies of the students' "Others" reflection sheets from the dialog sessions 1, 3 & 5
-Copies of "Other" Summary Reflection Sheets – preferably on pink paper or any pastel color (~40 copies)
-Copies of "Topic Straw Poll, Version 2" –one per student

**PROCEDURES**

***Upon Entering the Classroom:*** Physically separate the students within the classroom into a Pro & a Con side.

***1. Activity:*** *"We'll want to know all the others' arguments and have our best counterarguments to them at our fingertips during the Showdown. Getting them ready is our task for today."*

***A. (10 min) Team activity***: All of their previous "Other" Reflection sheets (from dialog sessions) are distributed to each team. *"Your task is to sort these into piles, with one pile for each different OTHER-SIDE reason. So read their reasons & put all those that are the same reason in one pile. When you are playing a card game and you want to group all of the cards by their suits to create a pile, so think about the other-side reasons as different suits and place all of the other-side reasons that are the suit of hearts into a pile."* The team may divide the sheets and break into small groups for this activity, but then reassemble to integrate their piles, so there is only one pile for each Other-side reason.

***B. (5 min) Team activity:*** *"Are you sure you have just one pile for each different reason? Double-check. Are there any Other-side reasons you've heard in your dialogs (or from reasons you've heard from others outside class) that are missing?"* (An additional Reflection sheet can be created for any such reason.)

***C. (15 min) Pair discussion:*** The Coach provides blank PINK SUMMARY REFLECTION SHEETS & instructs students to place one on top of each pile & paper-clip pile. Teams assemble into PAIRS & each pair takes a share of the piles. *"Your task now is to examine each pile, one at a time, review our Counters to this reason that are written on the reflection sheets from our dialogs, & decide on the single BEST COUNTER. Then write a FEWEST-WORDs version of the Other-side reason & its Best Counter on the FINAL (pink) Reflection sheet, so you'll have it ready for the Showdown."*

***D. (10 min) Pair discussion:*** (Exchanges across pairs can be continued as time permits) *"Exchange your piles, with pink sheets on top, with another pair. Review the other pair's work. Have your teammates written on the pink sheet the best, strongest COUNTER, the one that will do the most damage to this reason? Is there a better Counter or a better way to say this one? If so, make suggestions to the other pair."*

***E. (5 min) Team discussion:*** The team reviews the full set of pink sheets & agrees on the final set, each containing an Other-side reason & its Best possible counter to other-side reasons, to be used in the Showdown.

***F. (5 min) Optional small-group discussion between a Coach & the small group:*** Coach solicits responses from a small group: *"What's their toughest reason for us to counter? How will we counter it?"*

***2. (5 min) Administer Topic Straw Poll***: Distribute to the entire class a "Topic Straw Poll, Version 2" that each student needs to complete individually. Make sure that each student writes their name on the paper. The Coach may read this aloud to the entire class.

**3. After the class session:** Separate each top pink sheet from each pile & save each team's set for the Showdown. Be sure to keep separate the Pro & Con teams' sets of pink reflection sheets.

# "OTHER" SUMMARY REFLECTION SHEET

THEIR ARGUMENT:

OUR BEST COUNTERARGUMENT:

ANOTHER COUNTERARGUMENT:

## ARGUMENT CURRICULUM YEAR 1
## TOPIC 1, ENDGAME – SESSION 2: PREPARING TO REBUT OTHERS' COUNTERS TO OUR REASONS

**COMMON CORE STATE STANDARDS: GRADE 6—** RL.6.1, RI.6.8, W.6.1, W.6.1 (b), W.6.5, SL.6.1, SL.6.1 (b), SL.6.1 (c), SL.6.1 (d)

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Copies of the topic 1 scenario for students to reference when needed
-Paper Clips
-2 plastic bags (Pro & Con sides)
-Attendance & Participation log
-Copies of the students' "Own" reflection sheets from the dialog sessions 2, 4 & 6
-Copies of "Own" Summary Reflection Sheets – preferably on green paper or any pastel color (~40 copies)
-Copies of the Showdown "Team hot-seat volunteer list" – one per team
-Copies of "Homeschool Topic Letter to the Editor" – one set (3 pages makes one set) per student
-Copies of topic evidence collection for the Homeschool and the Town School side for Mixed & Supporting-evidence classrooms

**PROCEDURES**

***Upon Entering the Classroom:*** Physically separate the students within the classroom into a Pro & a Con side

***1. Activity****: "We'll need to have one of these sheets for each of our reasons at our fingertips during the Showdown, so we know what to come back with when they try to attack our reasons. Getting them ready is our task for today."*

***A. (7 - 10 min) Team activity:*** All of their previous "Own" Reflection sheets are distributed to each team. *"Sort these into piles, with one pile for each of our reasons. Think about this like when you are playing a card game and you want to group all of the cards by their suits to create a pile, so think about the our-side reasons as different suits and place all of our-side reasons that are the suit of hearts into a pile."* (The team may divide the sheets and break into small groups for this activity, but then reassemble to integrate their piles, so there is one pile for each Own-side reason. )

***B. (3 min) Team activity:*** *"Are you sure you have just one pile for each different reason? Double-check."*

***C. (10 min) Pair discussion:*** The Coach provides blank green "Own" Summary Reflection Sheets & instructs students to place one on top of each pile & paper-clip pile. Teams assemble into PAIRS & each pair takes a share of the piles. *"Examine each pile, one at a time, review the Counters to our reason that are written on the sheets, & bring to the top of the pile the top 3 sheets showing the toughest, most damaging Counters to our reason. There may be only one good Counter; there could be 2 or 3. Write a FEWEST-WORDs version of each of these Counters on the green sheet."*

***D. (10 min) Pair discussion:*** *"Now your final step. For each green sheet, look through the old sheets & find our best COMEBACK (Rebuttal) to that Counter to our reason. Write it on the green sheet below the Counter, to have ready for the Showdown."*

***E. (10 min) Pair discussion:*** (Exchanges across pairs can be continued as time permits)*"Exchange your piles, with green sheets on top, with another pair. Review the other pair's work. Have your teammates written on the green sheet the best, strongest Comeback to each Counter, the one that will best save our reason? Is there a better Comeback or a better way to say this one? If so, make suggestions to the other pair."*

***F. (3 - 5 min) Team discussion:*** The team reviews the full set of green sheets & agrees on the final set.

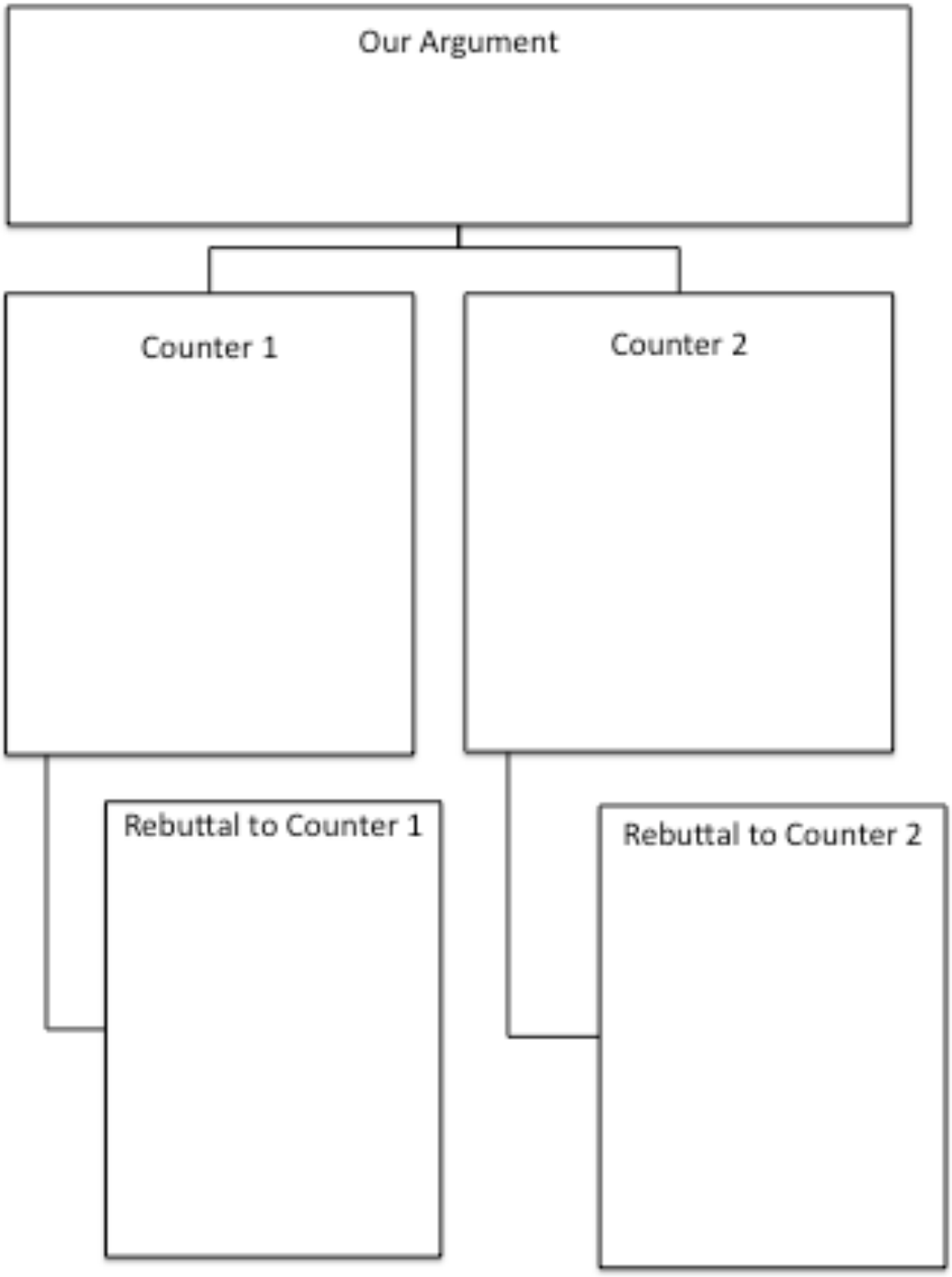
***G. (4 min) Team discussion:*** Ask each team for Showdown hotseat volunteers & record those student names (~3 students from each Pro-A, Pro-B, Con-A & Con-B). Then distribute & review the Showdown guidelines with the students.

***H. (5 min) Optional small-group discussion between a Coach & the small group:*** Coach solicits responses from a small group: *"What's their toughest counter for us to rebut? How will we do it?"*

**2. (15 min) Interim Homeschool topic essay:** Distribute to each student "Homeschool topic letter to the editor" set (3 pages makes one set). The students will complete this activity silently and individually. If the student is in classroom 601 or 602 then the student will also get an accompanying set of evidence depending on what side of the topic that student is on and which classroom that student is a member of.

**3. After the class session:** Separate each top green sheet from each pile & save each team's set for the Showdown. Be sure to keep separate the Pro & Con teams' sets of green reflection sheets.

## "OWN" SUMMARY REFLECTION SHEET



## Team _____
## Hot-Seat Volunteer List

List below the volunteers from your small group that would like to participate in the hot-seat during the showdown.

| | Name |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |

## Team _____
## Hot-Seat Volunteer List

List below the volunteers from your small group that would like to participate in the hot-seat during the showdown.

| | Name |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |

**HOMESCHOOL TOPIC LETTER TO THE EDITOR**

Name: _____ Date: _____

## Write a Letter to the Editor of the newspaper on this issue using the attached paper.
## You can take any position you want.

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together.

**A problem has come up!** The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home.

**Issue: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?**

***Please vote by circling one option:***

Home school okay  Nick must go to town school  Undecided

***How sure are you of your opinion? (Circle one)***

Certain  Very Sure  Sure  So-So  Not very sure  Not sure at all

## EVIDENCE FOR THE HOMESCHOOL SIDE
## Mixed-evidence classroom

*Question # 1:* Who sets the curriculum for a homeschool child?

***Answer:*** The family is free to set the curriculum within certain guidelines.

*Question # 2:* How many students are in a typical classroom?

**Answer**: In the United States the typical middle school classroom has an average of 24.3 students.

*Question # 3:* Who sets the curriculum for a public school child?

***Answer:*** School districts along with city and state governments have education departments that decide what all children need to learn.

*Question # 4:* Are homeschooling parents qualified to teacher their children?

**Answer:** Homeschooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects.

*Question # 5:* What can a homeschooled student do for sports and activities?

**Answer:** There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend.

*Question # 6:* How easily do children learn a second language?

**Answer**: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

---

## EVIDENCE FOR THE TOWN SCHOOL SIDE
## Mixed-evidence classroom

*Question # 1:* Who sets the curriculum for a public school child?

***Answer:*** School districts along with city and state governments have education departments that decide what all children need to learn.

*Question # 2:* Are homeschooling parents qualified to teacher their children?

**Answer:** Homeschooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects.

*Question # 3:* Who sets the curriculum for a homeschool child?

***Answer:*** The family is free to set the curriculum within certain guidelines.

*Question # 4:* How many students are in a typical classroom?

**Answer**: In the United States the typical middle school classroom has an average of 24.3 students.

*Question # 5:* How easily do children learn a second language?

**Answer**: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

*Question # 6:* What can a homeschooled student do for sports and activities?

**Answer:** There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend.

---

## EVIDENCE FOR THE HOMESCHOOL SIDE
## Supporting-evidence classroom

*Question # 1:* Who sets the curriculum for a homeschool child?

***Answer:*** The family is free to set the curriculum within certain guidelines.

*Question # 2:* How many children are homeschooled in the United States?

**Answer:** Of all American children ages 5-17 during the 2011-2012 school year almost 2 million were homeschooled.

*Question # 3:* Is homeschooling legal?

**Answer:** Homeschooling is legal in all 50 states. Every state has its own laws regarding homeschooling but some laws merely require you to notify your local school district that you are homeschooling your child.

*Question # 4:* How do homeschool students perform on achievement tests?

**Answer:** On average, homeschool students in 1st to 4th grades performed one grade level above their age-level public/private schooled peers on achievement tests.

*Question # 5:* What can a homeschooled student do for sports and activities?

**Answer:** There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend.

*Question # 6*: What are the college graduation rates for homeschool versus public school students?

**Answer**: A study showed that homeschool students (66.7%) graduated from college at a higher rate than public school students (57.5%).

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## EVIDENCE FOR THE TOWN SCHOOL SIDE
## Supporting-evidence classroom

*Question # 1:* Who sets the curriculum for a public school child?

***Answer:*** School districts along with city and state governments have education departments that decide what all children need to learn.

*Question # 2:* How many children attend public or private schools in the United States?

***Answer:*** Of all American children ages 5-17 during the 2011-2012 school year 97% of children attended public or private schools.

*Question # 3:* What are the requirements to be a public school teacher?

**Answer:** A public school teacher must go through teacher training programs, classes and must pass certification exams to become a certified teacher.

*Question # 4:* Do most schools have specialists to help children if they have specific problems like a learning disability?

**Answer:** Almost every public school has a special education teacher on staff full-time. There are federal and state laws that protect and ensure special education services are provided to any child that has a need.

*Question # 5:* How easily do children learn a second language?

**Answer**: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

*Question # 6*: Is working with a group in school good for children?

**Answer**: Group projects can help students develop many skills that are increasingly important in the work world.

## ARGUMENT CURRICULUM YEAR 1
## TOPIC 1, ENDGAME – SESSION 3: SHOWDOWN

**COMMON CORE STATE STANDARDS: GRADE 6—** SL.6.1, SL.6.1 (a), SL.6.1 (b), SL.6.1 (c), SL.6.1 (d), SL.6.3, SL.6.4, SL.6.6, L.6.1, L.6.3

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

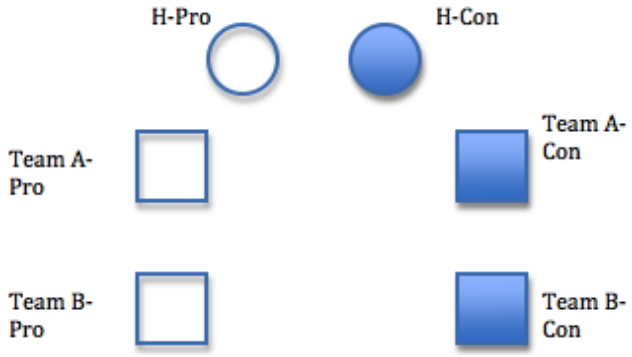
-Copies of the topic scenario (for each table)
-2 plastic bags (Pro & Con sides)
-Attendance & Participation log
-Stopwatch
-Audio / video equipment
-Copies of "Other" Summary Reflection Sheets from Endgame Session 1
-Copies of "Own" Summary Reflection Sheets from Endgame Session 2
-(Optional) Hot-Seat Student Lineup (for each table)
-Copies of Showdown rules (for each table/ team)
-Copies of Showdown guidelines (for each table/ team)

### PROCEDURES

***1. Physical classroom set-up:***

-2 chairs placed in the front-center of the classroom representing the "Hot-Seats"
(In picture: circles denote the "Hot-Seats")

-Each team (Pro-A, Pro-B, Con-A & Con-B) sits together
(In picture: squares denote the teams tables)




***2. Coaches / Teachers Role during the Showdown:***

-To monitor the 2-minute Round clock.
-To monitor the 1-minute Huddle clock (if & when a Huddle is called by the students).
-To moderate the transition between the Hot-Seat Rounds.
-To monitor the behavior of the audience (students not in the hot-seat).

***3. Procedure for a Showdown:***

-Students sit at their assigned team table.
-The A & B teams within each side toss a coin (or Coach assigns), which team will be going first into the "Hot-Seat" (this team is deemed the "in charge" team during that round).
-The colored reflection sheets from previous endgame sessions (copied for each team) are distributed and the teams are offered an initial 5-10-min "huddle" to get organized and decide their strategy and a tentative order of speakers.
-A student representative from the winning coin toss team sits in the "Hot-Seat."
-A coin toss between the students in the "Hot-Seat" determines whether Pro or Con team speaks first in the Round.
-The team not in charge observes and may pass notes to the team in charge but is otherwise silent.
-The Coach reviews the Showdown rules. (See Supplementary Materials.)

***4. Round Protocol:***

-The Coach begins the Round & starts the 2 minute clock when the first student in the "Hot-Seat" begins speaking.

-IF a huddle is called, the 2-minute clock for the Round is paused & resumed after the conclusion of the huddle (a huddle is given a one-minute duration).
-The Round ends at the conclusion of the 2-minute clock & the Coach calls "Time."
-The Coach asks for the next student representative from the Pro & the Con side to come up to the Hot-Seat (it is up to the Coach's discretion if the students in the Hot-Seat come from the same A &B team or rotate back& forth between the A & B teams).
-The Coach sums up the final word given by the last student speaker in the Hot-Seat (making note if the student was representing the Pro or the Con position, as the student of the opposing side will speak first in this round).
-The Coach begins the Round & starts the 2-minute clock when the student in the Hot-Seat begins speaking.
-This procedure continues until the end of the period.

***Note:*** It is up to the Coach's discretion but the Coach may prepare in advance of the Showdown a Hot-Seat Lineup with the student hot-seat volunteers names already listed for each Round (collected at the Endgame Session 2 class). This will facilitate efficiency during the transition periods between the Rounds.

*Example of a potential Hot-Seat Lineup:*

| Round 1 | |
|---|---|
| Pro: Team-A Student | Con: Team-A Student |
| Round 2 | |
| Pro: Team-A Student | Con: Team-A Student |
| Round 3 | |
| Pro: Team-A Student | Con: Team-A Student |
| Round 4 | |
| Pro: Team-B Student | Con: Team-B Student |
| Round 5 | |
| Pro: Team-B Student | Con: Team-B Student |
| Round 6 | |
| Pro: Team-B Student | Con: Team-B Student |
| Round 7 | |
| Pro: Team-A Student | Con: Team-A Student |
| | |
| Alternate: Pro: Team-A Student | Alternate: Con: Team-A Student |
| Alternate: Pro: Team-B Student | Alternate: Con: Team-B Student |

***5. After the Showdown / Before the Debrief Session:*** Transcribe the Showdown Rounds. Create an argument map of the Showdown Rounds.

*Example of an argument map of the Showdown:*

| ***Round 1*** | | | |
|---|---|---|---|
| ***Row*** | ***Pro*** | ***Con*** | ***Strategy*** |
| 1 | We think that…. | | |
| 2 | | It doesn't matter what (inaudible) … | |
| 3 | See what I'm saying is that if … | | |
| 4 | | But if … | |
| 5 | But see … CALLS FOR HUDDLE. | | Huddle |
| 6 | So if they … | | |
| | | | |
| ***Round 2*** | | | |
| ***Row*** | ***Pro*** | ***Con*** | ***Strategy*** |
| 7 | | Well if … | |
| 8 | Well, actually … | | |
| 9 | | Well… | |
| 10 | Well, … | | |
| 11 | HUDDLE CALLED BY TEAM | | Huddle |
| 12 | Well, they … | | |
| 13 | | Well… | |

## SHOWDOWN RULES

TEAM ASSIGNMENT

1. Each team (A & B) will get a turn for their members to gather at the "hot table" and serve in the "hot seat." The moderator will indicate the half-way point when teams change.

"HOT-SEAT" ROLE

1. A team may choose among themselves who goes to the "hot seat," except…

2. No team member may take a second turn in the hot seat until every member who wishes to has had a turn.

USE OF REFLECTION SHEETS

2. Students in the "hot seat" are not allowed to use to index cards or reflection sheets while debating their opponent.

3. The team members at the "hot table" are allowed to use and refer to their reflection sheets. These may also be used/referenced during a huddle.

RULES FOR THE HOT SEAT

4. Students will be allowed two (2) minutes in the "hot seat" to debate an opposing team member.

5. If a huddle is called, the clock stops on these two minutes until the debate resumes.

6. The student in the "hot seat" is not allowed to read from index cards or reflection sheets.

RULES FOR THE HUDDLE

7. A huddle may be called by anyone on either side of the debating team, including the student in the "hot seat." Wait until a speaker has finished speaking before calling a huddle.

8. REMEMBER THAT YOU DO NOT LOSE POINTS FOR CALLING A HUDDLE AND TAKING TIME TO THINK ABOUT AN APPROPRIATE COUNTER.

9. When a huddle is called, the student in the "hot seat" will join their team at the table and are allowed to conference for one (1) minute.

## SHOWDOWN GUIDELINES

| (DOs) YOUR TEAM WILL EARN POINTS IF YOU… | (DON'Ts) YOUR TEAM WILL LOSE POINTS IF YOU… |
|---|---|
| ✓ Listen well to what your opponent says | × Ignore what your opponent says |
| ✓ Address and counter what your opponent said | × Fail to respond to your opponent while there is still time on the clock; you will not be penalized if time runs out |
| ✓ Take time to think about a suitable response before speaking. You do not gain points simply because you responded quickly. | × Raise your voice at your opponent or fail to give them a reasonable chance to respond |

# Hot-Seat Lineup

| **Round 1** | |
|---|---|
| *Homeschool Team:* | *Town School Team:* |
| **Round 2** | |
| *Homeschool Team:* | *Town School Team:* |
| **Round 3** | |
| *Homeschool Team:* | *Town School Team:* |
| **Round 4** | |
| *Homeschool Team:* | *Town School Team:* |
| **Round 5** | |
| *Homeschool Team:* | *Town School Team:* |
| **Round 6** | |
| *Homeschool Team:* | *Town School Team:* |
| **Round 7** | |
| *Homeschool Team:* | *Town School Team:* |
| **Round 8** | |
| *Homeschool Team:* | *Town School Team:* |

## ARGUMENT CURRICULUM YEAR 1
## TOPIC 1, ENDGAME- SESSION 4: ESSAY PRE-WRITE & FINAL TOPIC ESSAY

**COMMON CORE STATE STANDARDS: GRADE 6—** RL.6.1, RI.6.7, RI.6.8, W.6.1, W.6.1 (a), W.6.1 (b), W.6.1 (c), W.6.1 (d), W.6.1 (e), W.6.4, W.6.10, L.6.1, L.6.2, L.6.2 (b), L.6.3

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Attendance & Participation log
-Copies of the topic scenario (for each table)
-Copies of "Topic argument with yourself" (1 per student – 3 pages makes one set)
-Copies of "Homeschool Topic Letter to the Editor" – one set (3 pages makes one set) per student
-Copies of topic evidence collection for the Homeschool and the Town School side for Mixed & Supporting-evidence classrooms

**PROCEDURES**

In a final individual essay, students may take either the pro or con position, regardless of the side they took during the activity.

***1. (5 - 7 min) Full-Group Instruction:*** In a Pre-write activity, students are instructed to "have an argument with yourself." The student divides a sheet of paper in half lengthwise (hotdog style) and begins by writing their own position and justification for it in the left column. In the right column they write "what another person who disagreed might say" and then in the left column what they might say in return. Approximately 6-10 entries in each column should be completed. The first time this activity is given, the Coach may physically illustrate this activity by using the dialogue from the "sample argument with self" document playing both roles by moving physically from one chair to another.

*Example of how to set-up a piece of paper for the activity:*

| "Own" Side | "Other" Side |
|---|---|
| -Own position with justification | |
| | -What another person who disagreed might say |
| -How might you respond to the previous statement made by the "Other" side | |
| | -How might this side respond to the previous statement made by the "Own" side |

1. ***(15 min) Individual Work:*** Students are asked to silently work on the pre-write activity of "having an argument with themselves."

2. ***(5 min) Full-Group Instruction:*** Students are instructed to use the Pre-write activity as a resource in writing their final essay in conventional format. The Coach may review how "Topic Argument with Yourself" can be turned into an essay but discussing the "sample argument with self" document but do not distribute it for Topic 1. Then distribute and review with the students "Guidelines for Writing Your Final 'Letter to the Editor' Topic Essay."

***(25 min) Individual Work:*** Then distribute the "Homeschool Topic Letter to the Editor" and have each student silently and individually write a letter to the editor on this topic. *"These essays will be read and reviewed by the judges who judged the showdown and points will be additionally awarded to the teams depending on the group members individual letters to the editors. So you can get more points for your team!"* If the students are in classrooms 601 or 602 then the appropriate evidence should be administered to each student depending on if they are a member of the Homeschool or Town School side.

**TOPIC ARGUMENT WITH YOURSELF**

Name: _____ Date: _____

| Your OWN Side | The OTHER Side |
|---|---|
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**HOMESCHOOL TOPIC LETTER TO THE EDITOR**

Name: _____Date: _____

**Write a Letter to the Editor of the newspaper on this issue using the attached paper.**
**You can take any position you want.**

Imagine you are forming a new town in an undeveloped area. It will be called ColumbiaTown. Decisions must be made about how the town will work. We ask you to consider the case of Nick. ColumbiaTown has a good school that the parents and students are happy with. All of the children in our town attend this school through high school. Since the houses are far apart, school gives children a chance to be together.

**A problem has come up!** The Costa family has moved to the edge of town from far away Greece with their 11-year-old son, Nick. Nick's parents are both teachers, and in Greece they were keeping him at home and teaching him themselves. Nick was a good student and good soccer player in Greece and his parents have decided that in ColumbiaTown, they want to keep Nick at home with them, and not have him at the school with the other children. The family speaks only Greek, and they think Nick will do better if he sticks to his family's language, and doesn't have to do his schoolwork in English. They say they can teach him everything he needs at home.

**Issue: Is it okay for the Costa family to live in the town but keep Nick at home, or should they send their son to the town school like all the other families do?**

***Please vote by circling one option:***

Home school okay  Nick must go to town school  Undecided

***How sure are you of your opinion? (Circle one)***

Certain  Very Sure  Sure  So-So  Not very sure  Not sure at all

## EVIDENCE FOR THE HOMESCHOOL SIDE
## Mixed-evidence classroom

*Question # 1:* Who sets the curriculum for a homeschool child?
***Answer:*** The family is free to set the curriculum within certain guidelines.

*Question # 2:* How many students are in a typical classroom?
**Answer**: In the United States the typical middle school classroom has an average of 24.3 students.

*Question # 3:* Who sets the curriculum for a public school child?
***Answer:*** School districts along with city and state governments have education departments that decide what all children need to learn.

*Question # 4:* Are homeschooling parents qualified to teacher their children?
**Answer:** Homeschooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects.

*Question # 5:* What can a homeschooled student do for sports and activities?
**Answer:** There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend.

*Question # 6:* How easily do children learn a second language?
**Answer**: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

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## EVIDENCE FOR THE TOWN SCHOOL SIDE
## Mixed-evidence classroom

*Question # 1:* Who sets the curriculum for a public school child?
***Answer:*** School districts along with city and state governments have education departments that decide what all children need to learn.

*Question # 2:* Are homeschooling parents qualified to teacher their children?
**Answer:** Homeschooling parents are not required to be certified teachers or to have specific qualifications to teach particular subjects.

*Question # 3:* Who sets the curriculum for a homeschool child?
***Answer:*** The family is free to set the curriculum within certain guidelines.

*Question # 4:* How many students are in a typical classroom?
**Answer**: In the United States the typical middle school classroom has an average of 24.3 students.

*Question # 5:* How easily do children learn a second language?
**Answer**: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

*Question # 6:* What can a homeschooled student do for sports and activities?
**Answer:** There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend.

## EVIDENCE FOR THE HOMESCHOOL SIDE
## Supporting-evidence classroom

*Question # 1:* Who sets the curriculum for a homeschool child?

***Answer:*** The family is free to set the curriculum within certain guidelines.

*Question # 2:* How many children are homeschooled in the United States?

**Answer:** Of all American children ages 5-17 during the 2011-2012 school year almost 2 million were homeschooled.

*Question # 3:* Is homeschooling legal?

**Answer:** Homeschooling is legal in all 50 states. Every state has its own laws regarding homeschooling but some laws merely require you to notify your local school district that you are homeschooling your child.

*Question # 4:* How do homeschool students perform on achievement tests?

**Answer:** On average, homeschool students in 1st to 4th grades performed one grade level above their age-level public/private schooled peers on achievement tests.

*Question # 5:* What can a homeschooled student do for sports and activities?

**Answer:** There are many sport teams, programs and activities at local YMCAs and recreation centers that any children can attend.

*Question # 6*: What are the college graduation rates for homeschool versus public school students?

**Answer**: A study showed that homeschool students (66.7%) graduated from college at a higher rate than public school students (57.5%).

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## EVIDENCE FOR THE TOWN SCHOOL SIDE
## Supporting-evidence classroom

*Question # 1:* Who sets the curriculum for a public school child?

***Answer:*** School districts along with city and state governments have education departments that decide what all children need to learn.

*Question # 2:* How many children attend public or private schools in the United States?

***Answer:*** Of all American children ages 5-17 during the 2011-2012 school year 97% of children attended public or private schools.

*Question # 3:* What are the requirements to be a public school teacher?

**Answer:** A public school teacher must go through teacher training programs, classes and must pass certification exams to become a certified teacher.

*Question # 4:* Do most schools have specialists to help children if they have specific problems like a learning disability?

**Answer:** Almost every public school has a special education teacher on staff full-time. There are federal and state laws that protect and ensure special education services are provided to any child that has a need.

*Question # 5:* How easily do children learn a second language?

**Answer**: Children exposed to a new language usually learn it very quickly and more easily than teens or adults do.

*Question # 6*: Is working with a group in school good for children?

**Answer**: Group projects can help students develop many skills that are increasingly important in the work world.

**ARGUMENT CURRICULUM YEAR 1**
**TOPIC 1, ENDGAME – SESSION 5: SHOWDOWN DEBRIEF**

**COMMON CORE STATE STANDARDS: GRADE 6—** RL.6.1, RI.6.7, RI.6.8, SL.6.1, SL.6.3

**BEHIND THE SCENES PREPARATION WORK (REQUIRED MATERIALS):**

-Attendance & Participation log
-Copies of the scored Argument Map of the Showdown "Argument Map – Student Version" (1 per student)
-Copies of the scored Argument Map of the Showdown "Argument Map – Teacher Version" (1 per Teacher to facilitate the lesson specific to each class' performance during the Showdown)
-Select video clips of the Showdown (Optional)
-Technology set-up in the classroom to show the video clips of the Showdown (Optional)

**PROCEDURES**

***An Argument Map is:*** A transcription with one team's statements in left column and other team's in right, with points indicated for strong and weak moves. A central focus should be positive scoring of counterargument (and rebuttal), and avoidance of unwarranted assumptions (can be added later on in discussions). Counter: addresses what the other side just said & weakened it. Unwarranted Assumption: a claim is not necessarily true and could be challenged

***1. (5-10 min) Full- Group:*** Distribute a scored Argument Map to each student. Have a silent review of the scored Argument Map with the students circling all the codes they do not understand, making note of any questions they might have, etc.

***2. (25-30 min) Full-Group Discussion:*** To facilitate the discussion a video-clip of a Showdown Round maybe shown to the students. The Coach then leads students through a discussion of why each statement was scored the way it was. Students can object to a particular scoring, with others invited to respond, as long as this discussion remains productive. A student who remains unsatisfied can be invited to submit a written argument for consideration by an expert judge who will make the final scoring decision. Depending on the length of the transcript, coaches may select more productive segments for discussion.

*Potential talking points:*

1. Did a statement **ignore** what the opponent had just said to introduce a new idea? (0 points)
2. Did a statement **counter** what the opponent had said in a way that **weakened** it? (1 point)
3. Did a response to a counter (rebuttal) restore the strength of the speaker's point? (1 point)
4. Did the speaker make an **unwarranted assumption**? (Minus 1 point)
5. If **evidence** was cited, was it used in the **service** of an argument (not just cited). (1 point)

***3. Conclusion:*** A winning team is announced at the end of the session. Distribute the Final Topic1 Essay assignment to each student.

## ~ Mixed-evidence's Topic 1 Showdown Argument Map ~ TEACHER VERSION~

| ***Round 1*** | | | | |
|---|---|---|---|---|
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 1 | | Nick should go to town school because he has a lot of opportunities to do more things. | New idea | |
| 2 | Well, Nick could play sports, which will give him a lot of opportunities to play professional soccer. | | Counter | (+1) |
| 3 | | He can he only play professional soccer in school cause if he plays alone at his house he will be like lonely and has no one to play with | Unwarranted assumption | |
| 4 | Can you say that again? | | Clarify | Tell them asking for clarify is always fine |
| 5 | | I said that Nick could play professional soccer only in a school cause when he is at home he is so lonely. | Repeat | |
| 6 | HUDDLE called | | Huddle | |
| 7 | So he can play soccer with his neighborhood and he could play soccer with YMCA | | Counter + Evidence | (+1) + (+1) |
| 8 | | But why would he play with strangers if he doesn't even know those people. Plus when he goes to school…well…when he studies at home he has more distractions like with his video games something like that. But when he goes to school the teachers can really like push him to do more work. | Counter + New idea | (+1) good strategy - counter, then new idea |
| 9 | But he can join a soccer team so… | | Unsuccessful counter | |
| 10 | | That's….well doesn't know those people and when if he plays…hey dude, listen…and when he plays in school he can meet new friends in his soccer team. Playing with his neighbors it's like he doesn't even know anyone. And it doesn't say that he lives with people next to him. Something like that. | Counter | (+1) |
| 11 | Uhm…well…maybe, maybe in his town there might Greek people. | | Unwarranted assumption | |
| 12 | | But…. | | |
| ***Round 2*** | | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 13 | | But if he goes to town school he could have different teachers can learn faster English | New idea | |
| 14 | Okay, but it is very easy to learn second language. | | Counter | (+1) Might this be a good place to have some evidence to support? (Missed opportunity to use exact evidence) |
| 15 | | Well, how is he gonna learn English if his friends don't speak English. | New idea | |
| 16 | Okay, I understand that but maybe he can go somewhere to learn English, he doesn't have to necessarily go to school | | Counter | (+1) |
| 17 | | Where did you go? | Unsuccessful counter | This is an unsuccessful counter as any answer wouldn't weaken the point made in 16 |
| 18 | Maybe he can go to the school but not be in the school, maybe after school, maybe the school has after-school activities that he could go to speak English. | | Counter | (+1) |
| 19 | | He is still going to school? | Counter | (+1) |
| 20 | Exactly, but he is not, he is only learning English. He is not learning academics. So he only learns English. | | Unsuccessful counter | |

| | | | | |
|---|---|---|---|---|
| 21 | | But he will have all these opportunities if he goes to school. | Counter | (+1) |
| 22 | I KNOW that, but he is only learning English. He is not learning math, science. His parents are teaching him math cause he is being homeschooled, not going to town school. | | Unwarranted assumption | |
| 23 | | Probably he can play soccer with his friends, he has friends. | Unconnected | How does this address what was said in line 22? |
| 24 | Okay, if he doesn't have friends, which he doesn't because he is new, he can play with his parents and…oh, speak… | | Counter | (+1) |
| 25 | | But his parents are very old. | Unwarranted assumption | |
| 26 | They can pass. Or maybe he has friends in Greece so maybe he can communicate with them online. | | Unsuccessful counter | |
| 27 | | Well but how could he play soccer with them? | Counter | (+1) |
| 28 | He could invite them. | | Unsuccessful counter | |
| 29 | | All the way to Greece from America? | Counter | (+1) Good challenge; it's a counter in the form of a Q |
| 30 | Yes | | Unsuccessful counter | |
| 31 | | Really? | Clarify | |
| 32 | Yes | | Unsuccessful counter | |
| 33 | | HUDDLE called | Huddle | |
| 34 | | Uhm his friends uhm only come uhm just play with him with all that money? | Unsuccessful counter | |
| 35 | Okay let's say they didn't go, his parents can play with him. | | Repeat | |
| 36 | | But they are very old. | Repeat | |
| 37 | How do you know their age? | | Counter | (+1) |
| 38 | | How do you know their age? | Repeat | |
| 39 | How do you know cause you are just saying they are very old. | | Counter | (+1) |
| 40 | | Cause they are teachers, to become teachers you have to be old. | Unwarranted assumption | Good attempt to provide evidence; but is it correct? |
| | | ***Round 3*** | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 41 | His parents could be 23, they could be old. Nick could have an older younger sibling Nick could play with. And he doesn't have to go to school to have friends he can meet friends outside. | | Counter | (+1) Nice connection to the previous round |
| 42 | | But Nick doesn't have an older brother or sister. It just him and his parents. And how can he be socially active if he, if he doesn't want to go to town school? And the only way to go to be socially activities is to go to town school. | Unwarranted assumption | |
| 43 | He don't need to go to school to be active. With other people. You can just find people online, and didn't ever say in the article that he didn't have any siblings. | | Counter | (+1) a good challenge to the unwarranted assumption of 42 |
| 44 | | And as you just kind of get it just says that Nick and his parents moved from Greece. It didn't say that his brother or sister and his parents. So what are you trying to say? | Counter | (+1) |
| 45 | One of his siblings could have lived here already. | | Unwarranted assumption | |
| 46 | | But it didn't say in the article. So technically it is not true. | Counter | (+1) Explain that there is much we can't assume as true or false; we must argue without knowing these things for sure - so we can't use them as reasons one way or the other |

| | | | | |
|---|---|---|---|---|
| 47 | I know but it does not need to be said in the article. | | | |
| 48 | | Actually it kind of does. | | |
| 49 | Why? | | | |
| 50 | | Because it shows whether its false or not. | | |
| 51 | Or not? | | | |
| 52 | | Yes. | | |
| 53 | No it doesn't have to say any of that because they could just live there and it could be a secret sibling | | Unwarranted assumption | |
| 54 | | Right but they didn't say he has a secret sibling and even if they did, which is him and his parents. | | |
| 55 | Okay but then he can still make friends outside of school. | | New idea | Demonstrates the above point -- getting back to the argument w/out knowing the sibling status |
| 56 | | But how can he do that? In the article it said the houses are too far away and the only time they can be socially active is to go to town school. | Counter | (+1) |
| 57 | He can just go to the town school area and make friends nearby there. | | Counter | (+1) |
| ***Round 4*** | | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 58 | | I think that going to homeschool is very distracting. You get distracted by surroundings, like TVs or sounds around you, and also family members. | New idea | |
| 59 | So well Nick does not always get distracted, well he does it sometimes but still, like, if he concentrates really hard, like, if he went to homeschool, his parents would teach him clearly. | | Unwarranted assumption | We don't know if he does or not. Could argue only about what is likely or unlikely |
| 60 | | How do you know that sometimes he gets distracted or not? A lot of people get distracted over anything. | Counter | (+1) Good counter, demonstrates the above point |
| 61 | Well, if home school, like, town school, like, if he goes to town school, when he makes friends, his friends will start talking English to him, but he doesn't understand yet. | | Counter | (+1) |
| 62 | | I am sure that Nick's parents do not know all the languages like town school. Town school they take classes to learn the languages so Nick can learn like English after school, like Spanish and other types of languages. | Counter | (+1) |
| 63 | I know, but still, like, if he had to, like, play sports, he can just like invite people who know Greek, instead of going to town school to learn a different language. | | Counter | (+1) "I know, but..." Good. Always acknowledge the opponent's point (or counter it) |
| 64 | | Yeah, but if you go to town school, you will have a coach you are not like going with your friends, you have someone to help you to learn. | Unwarranted assumption | |
| 65 | Well, it is kind of true, but still, like, if he is homeschooled, like, his parents, like, either young or old, they can still teach him the same thing. He can still learn without having to go to town school. | | Unsuccessful counter | |
| ***Round 5*** | | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 66 | | But in town school they know more things than Nick's parents. | Unwarranted assumption | Why do you believe this? |

| | | | | |
|---|---|---|---|---|
| 67 | But still you don't know whether Nick's parents speak English. | | Unsuccessful counter | |
| 68 | | Well they are not learning English cuz it doesn't say in the text. | Counter | (+1) |
| 69 | So he doesn't have to learn English, he can just join a soccer team so he could make friends there, maybe they will teach him how to learn English. | | Counter | (+1) |
| 70 | | Yeah but kids are not going to teach them, better have a teacher to teach somebody to learn English. | Counter | (+1) |
| 71 | Okay but his mom and dad are teachers. | | Counter | (+1) |
| 72 | | Yeah but they are not teaching him English. | Unwarranted assumption | |
| 73 | But still, he could still, uhm, he could still uhm, he could still learn English with other people that he doesn't know. And if he walks with his mom and dad, you know, he could talk to other kids. | | Counter | (+1) |
| 74 | | Yeah but how is he going to understand them if he doesn't know English yet? | Counter | (+1) |
| 75 | HUDDLE called | | Huddle | |
| 76 | He could go to after school, so he could have, uhm, he could have activity. | | New idea | |
| 77 | | But how do you know they teach English? | Counter | (+1) |
| 78 | But you may never know that a teacher may speak Greek and English and he can translate to them. | | Counter | (+1) |
| 79 | | But it never says that in the text. | Counter | (+1) |
| 80 | Okay but still you may never know there might be a Greek teacher there who can translate to them. | | Unwarranted assumption | But there might not; can't assume |
| 81 | | Yeah, exactly, so then if he goes to town school he can learn English. | Counter | (+1) |
| 82 | Okay but he can learn English by himself cuz if he goes to school, other kids, he could get distracted. They will make a lot of noises, they will bully them, they will throw things at them, throw food at them. | | Counter | (+1) |
| 83 | | Okay just because he doesn't speak English doesn't mean they will do all those things to him. | Counter | (+1) |
| 84 | Well he could still learn English alone without being distracted. | | Unsuccessful counter | Doesn't counter 83, missed opportunity |
| ***Round 6*** | | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 85 | | Just because he can learn English without being distracted doesn't mean he can learn English properly. If he learns English at school, maybe he knows better. And if he is around kids of his own age, then they can help him. | Counter | (+1) Nice job picking up where the last round ended. Isn't there some evidence that would have been helpful to this counter? |
| 86 | But you don't know if his parents speak English. Maybe his parents speak English so they can teach him how to speak English. | | Counter | (+1) |
| 87 | | But they are from Greece so how would they know how to speak English? | Counter | (+1) |
| 88 | Or maybe his cousin or somebody from his family is in the US, they know how to speak English. They can go and show him how to speak English. | | Unwarranted assumption | But there might not; can't assume |
| 89 | | Yeah, but maybe his cousin isn't a good teacher. He should learn around a school environment so then he sees a bunch of words around he will recognize them to learn a language better. | Counter | (+1) |

| | | | | |
|---|---|---|---|---|
| 90 | But his cousin, his mom, his aunt may know how to speak English and she can teach him how to speak English. | | Unwarranted assumption | |
| 91 | | But how about if she is not a very good teacher? | Unwarranted assumption | |
| 92 | Then he can go to a program where they can show him how to speak English. | | Counter | (+1) |
| 93 | | But some programs don't teach English, some programs are just activities that help you with homework. | Counter | (+1) |
| 94 | Well, then, I don't know. | | | |
| 95 | HUDDLE called | | Huddle | |
| 96 | Nick doesn't have to learn English from town school because his parents can get a tutor for him. | | Counter | (+1) |
| 97 | | But maybe the tutor costs too much money and they can't afford it since they can't teach in America since they might not know English. | Unwarranted assumption | |
| 98 | But nobody cares. His parents want him to speak English, it doesn't matter if his tutor costs 100 dollars, or 1000 dollars. They can buy it by working. So the tutor can teach him. | | Unwarranted assumption | |
| 99 | | But how about…. | | |
| | | ***Round 7*** | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 100 | | Nick can go to a town school because the school is public so he can go without having to pay. | New idea | |
| 101 | He doesn't have to go to school he can learn English in the TV or in the computer. | | Unsuccessful counter | Is this connected to the previous statement? |
| 102 | | Isn't that the same thing as a tutor? You wouldn't know if he has a TV or any internet? | Counter | (+1) |
| 103 | Yeah, but he also can learn English with a book or a dictionary. | | Counter | (+1) |
| 104 | | A dictionary may not have Greek words in them and I don't… | | |
| 105 | | HUDDLE called | Huddle | |
| 106 | | He might be able to get a dictionary or book but how would he be able to pronounce the words in the dictionary because. And also nobody from his family knows English so nobody will tell him how to say the words. | Counter | (+1) |
| 107 | How do you know? | | Counter | (+1) Very good Q to use frequently |
| 108 | | Cuz nobody from his family knows how to read English or knows how to talk English. | Unwarranted assumption | |
| 109 | How do you know? | | Counter | (+1) Very good Q to use frequently |
| 110 | | Because in the article it said that he came from Greece and that nobody from his family knows how to speak English. | Counter | (+1) |
| 111 | Yes but he can get free volunteering tutor at a program. | | Unwarranted assumption | |
| 112 | | Exactly, he can go to a program, he can go to a school and go to a program at school that have extra activities he can go to. | Counter | (+1) |
| 113 | But he can also learn English when doing other things with his friends. | | Counter | (+1) |
| 114 | | He can also….. | | |

| Round 8 | | | | |
|---|---|---|---|---|
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** | ***Comments*** |
| 115 | | It doesn't matter if his friends can teach him English because he doesn't have any friends in the first place. | Unwarranted assumption | |
| 116 | But that doesn't mean he can't learn English, because his parents can teach it to Nick. | | Counter | (+1) |
| 117 | | But actually he needs to learn English because if he is going to stay there what if he wanted to go to school or experience something new. | Unwarranted assumption | |
| 118 | His parents can teach him English. | | Unwarranted assumption | |
| 119 | | How can his parents teach him English if his parents only know Greek? | Counter | (+1) |
| 120 | Yeah they can first learn English in college and then they can teach Nick. | | Unsuccessful counter | |
| 121 | | But why would his parents go to college if they are already teaching Nick? | Counter | (+1) |
| 122 | He can, he needs a tutor. | | Counter | (+1) |
| 123 | | How are they gonna find a tutor that speaks Greek, that translates Greek? | Unwarranted assumption | |

***Points For Mixed-evidence classroom:***

| *Round* | *Homeschool side* | *Town School side* |
|---|---|---|
| 1 | 2 | 2 |
| 2 | 6 | 4 |
| 3 | 3 | 3 |
| 4 | 2 | 2 |
| 5 | 4 | 6 |
| 6 | 3 | 4 |
| 7 | 4 | 4 |
| 8 | 2 | 2 |
| TOTAL | 26 | 27 |

## ~ Mixed-evidence's Topic 1 Showdown Argument Map ~ Student Version ~

| ***Round 1*** | | | |
|---|---|---|---|
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 1 | | Nick should go to town school because he has a lot of opportunities to do more things. | New idea |
| 2 | Well, Nick could play sports which will give him a lot of opportunities to play professional soccer. | | Counter |
| 3 | | He can he only play professional soccer in school cause if he plays alone at his house he will be like lonely and has no one to play with | Unwarranted assumption |
| 4 | Can you say that again? | | Clarify |
| 5 | | I said that Nick could play professional soccer only in a school cause when he is at home he is so lonely. | Repeat |
| 6 | HUDDLE called | | Huddle |
| 7 | So he can play soccer with his neighborhood and he could play soccer with YMCA | | Counter + Evidence |
| 8 | | But why would he play with strangers if he doesn't even know those people. Plus when he goes to school…well…when he studies at home he has more distractions like with his video games something like that. But when he goes to school the teachers can really like push him to do more work. | Counter + New idea |
| 9 | But he can join a soccer team so… | | Unsuccessful counter |
| 10 | | That's….well doesn't know those people and when if he plays…hey dude, listen…and when he plays in school he can meet new friends in his soccer team. Playing with his neighbors it's like he doesn't even know anyone. And it doesn't say that he lives with people next to him. Something like that. | Counter |
| 11 | Uhm…well…maybe, maybe in his town there might Greek people. | | Unwarranted assumption |
| 12 | | But…. | |
| ***Round 2*** | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 13 | | But if he goes to town school he could have different teachers can learn faster English | New idea |
| 14 | Okay, but it is very easy to learn second language. | | Counter |
| 15 | | Well, how is he gonna learn English if his friends don't speak English. | New idea |
| 16 | Okay, I understand that but maybe he can go somewhere to learn English, he doesn't have to necessarily go to school | | Counter |
| 17 | | Where did you go? | Unsuccessful counter |
| 18 | Maybe he can go to the school but not be in the school, maybe after school, maybe the school has after-school activities that he could go to to speak English. | | Counter |
| 19 | | He is still going to school? | Counter |
| 20 | Exactly, but he is not, he is only learning English. He is not learning academics. So he only learns English. | | Unsuccessful counter |
| 21 | | But he will have all these opportunities if he goes to school. | Counter |
| 22 | I KNOW that, but he is only learning English. He is not learning math, science. His parents are teaching him math cause he is being homeschooled, not going to town school. | | Unwarranted assumption |
| 23 | | Probably he can play soccer with his friends, he has friends. | Unconnected |
| 24 | Okay, if he doesn't have friends, which he doesn't because he is new, he can play with his parents and…oh, speak… | | Counter |
| 25 | | But his parents are very old. | Unwarranted assumption |
| 26 | They can pass. Or maybe he has friends in Greece so maybe he can communicate with them online. | | Unsuccessful counter |
| 27 | | Well but how could he play soccer with them? | Counter |
| 28 | He could invite them. | | Unsuccessful counter |

| | | | |
|---|---|---|---|
| 29 | | All the way to Greece from America? | Counter |
| 30 | Yes | | Unsuccessful counter |
| 31 | | Really? | Clarify |
| 32 | Yes | | Unsuccessful counter |
| 33 | | HUDDLE called | Huddle |
| 34 | | Uhm his friends uhm only come uhm just play with him with all that money? | Unsuccessful counter |
| 35 | Okay let's say they didn't go, his parents can play with him. | | Repeat |
| 36 | | But they are very old. | Repeat |
| 37 | How do you know their age? | | Counter |
| 38 | | How do you know their age? | Repeat |
| 39 | How do you know cause you are just saying they are very old. | | Counter |
| 40 | | Cause they are teachers, to become teachers you have to be old. | Unwarranted assumption |
| | | ***Round 3*** | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 41 | His parents could be 23, they could be old. Nick could have an older younger sibling Nick could play with. And he doesn't have to go to school to have friends he can meet friends outside. | | Counter |
| 42 | | But Nick doesn't have an older brother or sister. It just him and his parents. And how can he be socially active if he, if he doesn't want to go to town school? And the only way to go to be socially active is to go to town school. | Unwarranted assumption |
| 43 | He don't need to go to school to be active.<br>With other people. You can just find people online, and didn't ever say in the article that he didn't have any siblings. | | Counter |
| 44 | | And as you just kind of get it it just says that Nick and his parents moved from Greece. It didn't say that his brother or sister and his parents. So what are you trying to say? | Counter |
| 45 | One of his siblings could have lived here already. | | Unwarranted assumption |
| 46 | | But it didn't say in the article. So technically it is not true. | Counter |
| 47 | I know but it does not need to be said in the article. | | |
| 48 | | Actually it kind of does. | |
| 49 | Why? | | |
| 50 | | Because it shows whether its false or not. | |
| 51 | Or not? | | |
| 52 | | Yes. | |
| 53 | No it doesn't have to say any of that because they could just live there and it could be a secret sibling | | Unwarranted assumption |
| 54 | | Right but they didn't say he has a secret sibling and even if they did, which is him and his parents. | |
| 55 | Okay but then he can still make friends outside of school. | | New idea |
| 56 | | But how can he do that? In the article it said the houses are too far away and the only time they can be socially active is to go to town school. | Counter |
| 57 | He can just go to the town school area and make friends nearby there. | | Counter |

| *Round 4* | | | |
|---|---|---|---|
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 58 | | I think that going to homeschool is very distracting. You get distracted by surroundings, like TVs or sounds around you, and also family members. | New idea |
| 59 | So well Nick does not always get distracted, well he does it sometimes but still, like, if he concentrates really hard, like, if he went to homeschool, his parents would teach him clearly. | | Unwarranted assumption |
| 60 | | How do you know that sometimes he gets distracted or not? A lot of people get distracted over anything. | Counter |
| 61 | Well, if home school, like, town school, like, if he goes to town school, when he makes friends, his friends will start talking English to him, but he doesn't understand yet. | | Counter |
| 62 | | I am sure that Nick's parents do not know all the languages like town school. Town school they take classes to learn the languages so Nick can learn like English after school, like Spanish and other types of languages. | Counter |
| 63 | I know, but still, like, if he had to, like, play sports, he can just like invite people who know Greek, instead of going to town school to learn a different language. | | Counter |
| 64 | | Yeah, but if you go to town school, you will have a coach you are not like going with your friends, you have someone to help you to learn. | Unwarranted assumption |
| 65 | Well, it is kind of true, but still, like, if he is homeschooled, like, his parents, like, either young or old, they can still teach him the same thing. He can still learn without having to go to town school. | | Unsuccessful counter |
| *Round 5* | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 66 | | But in town school they know more things than Nick's parents. | Unwarranted assumption |
| 67 | But still you don't know whether Nick's parents speak English. | | Unsuccessful counter |
| 68 | | Well they are not learning English cuz it doesn't say in the text. | Counter |
| 69 | So he doesn't have to learn English, he can just join a soccer team so he could make friends there, maybe they will teach him how to learn English. | | Counter |
| 70 | | Yeah but kids are not going to teach them, better have a teacher to teach somebody to learn English. | Counter |
| 71 | Okay but his mom and dad are teachers. | | Counter |
| 72 | | Yeah but they are not teaching him English. | Unwarranted assumption |
| 73 | But still, he could still, uhm, he could still uhm, he could still learn English with other people that he doesn't know. And if he walks with his mom and dad, you know, he could talk to other kids. | | Counter |
| 74 | | Yeah but how is he going to understand them if he doesn't know English yet? | Counter |
| 75 | HUDDLE called | | Huddle |
| 76 | He could go to after school, so he could have, uhm, he could have activity. | | New idea |
| 77 | | But how do you know they teach English? | Counter |
| 78 | But you may never know that a teacher may speak Greek and English and he can translate to them. | | Counter |
| 79 | | But it never says that in the text. | Counter |
| 80 | Okay but still you may never know there might be a Greek teacher there who can translate to them. | | Unwarranted assumption |
| 81 | | Yeah, exactly, so then if he goes to town school he can learn English. | Counter |
| 82 | Okay but he can learn English by himself cuz if he goes to school, other kids, he could get distracted. They will make a lot of noises, they will bully them, they will throw things at them, throw food at them. | | Counter |
| 83 | | Okay just because he doesn't speak English doesn't mean they will do all those things to him. | Counter |
| 84 | Well he could still learn English alone without being distracted. | | Unsuccessful counter |

| Round 6 | | | |
|---|---|---|---|
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 85 | | Just because he can learn English without being distracted doesn't mean he can learn English properly. If he learns English at school, maybe he knows better. And if he is around kids of his own age, then they can help him. | Counter |
| 86 | But you don't know if his parents speak English. Maybe his parents speak English so they can teach him how to speak English. | | Counter |
| 87 | | But they are from Greece so how would they know how to speak English? | Counter |
| 88 | Or maybe his cousin or somebody from his family is in the US, they know how to speak English. They can go and show him how to speak English. | | Unwarranted assumption |
| 89 | | Yeah, but maybe his cousin isn't a good teacher. He should learn around a school environment so then he sees a bunch of words around he will recognize them to learn a language better. | Counter |
| 90 | But his cousin, his mom, his aunt may know how to speak English and she can teach him how to speak English. | | Unwarranted assumption |
| 91 | | But how about if she is not a very good teacher? | Unwarranted assumption |
| 92 | Then he can go to a program where they can show him how to speak English. | | Counter |
| 93 | | But some programs don't teach English, some programs are just activities that help you with homework. | Counter |
| 94 | Well, then, I don't know. | | |
| 95 | HUDDLE called | | Huddle |
| 96 | Nick doesn't have to learn English from town school because his parents can get a tutor for him. | | Counter |
| 97 | | But maybe the tutor costs too much money and they can't afford it since they can't teach in America since they might not know English. | Unwarranted assumption |
| 98 | But nobody cares. His parents want him to speak English, it doesn't matter if his tutor costs 100 dollars, or 1000 dollars. They can buy it by working. So the tutor can teach him. | | Unwarranted assumption |
| 99 | | But how about…. | |
| ***Round 7*** | | | |
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 100 | | Nick can go to a town school because the school is public so he can go without having to pay. | New idea |
| 101 | He doesn't have to go to school he can learn English in the TV or in the computer. | | Unsuccessful counter |
| 102 | | Isn't that the same thing as a tutor? You wouldn't know if he has a TV or any internet? | Counter |
| 103 | Yeah, but he also can learn English with a book or a dictionary. | | Counter |
| 104 | | A dictionary may not have Greek words in them and I don't… | |
| 105 | | HUDDLE called | Huddle |
| 106 | | He might be able to get a dictionary or book but how would he be able to pronounce the words in the dictionary because. And also nobody from his family knows English so nobody will tell him how to say the words. | Counter |
| 107 | How do you know? | | Counter |
| 108 | | Cuz nobody from his family knows how to read English or knows how to talk English. | Unwarranted assumption |
| 109 | How do you know? | | Counter |
| 110 | | Because in the article it said that he came from Greece and that nobody from his family knows how to speak English. | Counter |
| 111 | Yes but he can get free volunteering tutor at a program. | | Unwarranted assumption |
| 112 | | Exactly, he can go to a program, he can go to a school and go to a program at school that have extra activities he can go to. | Counter |
| 113 | But he can also learn English when doing other things with his friends. | | Counter |
| 114 | | He can also….. | |

| *Round 8* | | | |
|---|---|---|---|
| ***Row*** | ***Home School*** | ***Town School*** | ***Strategy*** |
| 115 | | It doesn't matter if his friends can teach him English because he doesn't have any friends in the first place. | Unwarranted assumption |
| 116 | But that doesn't mean he can't learn English, because his parents can teach it to Nick. | | Counter |
| 117 | | But actually he needs to learn English because if he is going to stay there what if he wanted to go to school or experience something new. | Unwarranted assumption |
| 118 | His parents can teach him English. | | Unwarranted assumption |
| 119 | | How can his parents teach him English if his parents only know Greek? | Counter |
| 120 | Yeah they can first learn English in college and then they can teach Nick. | | Unsuccessful counter |
| 121 | | But why would his parents go to college if they are already teaching Nick? | Counter |
| 122 | He can, he needs a tutor. | | Counter |
| 123 | | How are they gonna find a tutor that speaks Greek, that translates Greek? | Unwarranted assumption |